STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	1	52

STATE OF KANSAS

DEPARTMENT OF TRANSPORTATION

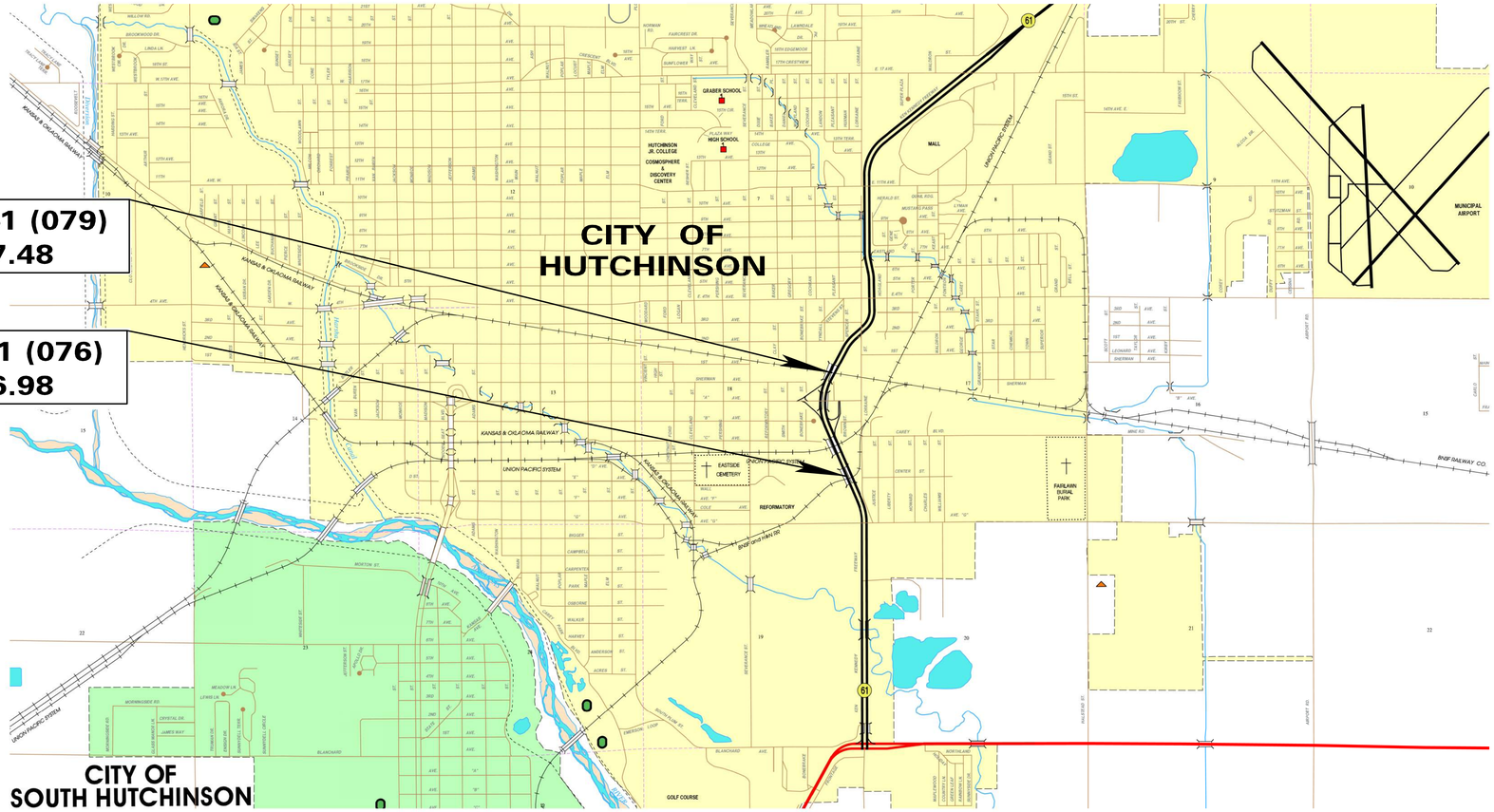
KDOT PROJ. NO. 61-78 KA-6135-01
FEDERAL PROJECT NO. ACNHP-A513(501)

BRIDGE REPAIR
TRAFFIC CONTROL

BRIDGE REPAIR

FEDERAL AID PROJECT
RENO COUNTY
K–61 OVER BNSF RAILROAD
PROJ. NO. 61–78 KA–6135–01
FEDERAL PROJECT NO. ACNHP–A513(501)

INDEX OF SHEETS



INDEX OF BRIDGE DRAWINGS	
Sheet No.	Drawing
01	Title Sheet
02	General Notes and Quantities
03	Construction Layout Bridge (076)
04	Painting at Girder Ends (076)
05	Median Barrier Bridge (076)
06	Abutment Aggregate Drain (076)
07	Construction Layout Bridge (079)
08	Median Barrier Bridge (079) (South Approach)
09	Median Barrier Bridge (079) (North Approach)
10	Deck Patching Details
11	Approach Slabs Bridge (076)
12-15	Approach Slabs Bridge (079)
16	RD711 Miscellaneous Details for Concrete Bridge Approach Pavement
17	RD712 Bridge Approach Slab Details Expansion/Pressure Relief Joint/Bridge Approach Slab Footing
26	Construction Staging Bridge (076)
27	Construction Staging Bridge (079)

NOTE:
K-61 TO REMAIN OPEN TO TRAFFIC WITH LIMITED CLOSURE FOR CONSTRUCTION STAGING.

SOUTHBOUND EXIT RAMP TO AVENUE A IS CLOSED DURING CONSTRUCTION.

SCALE
2000' 0 2000' 4000'

PLANS PREPARED BY:

GBA

DEREK W. HARTH LICENSED 17477 KANSAS PROFESSIONAL ENGINEER 03/01/22

Sheets 1-17, 26, 27

CHRISTOPHER NEVINS LICENSED 26418 03/01/22 KANSAS PROFESSIONAL ENGINEER

Sheets 18-25, 28-52

Plotted By: mbender | Plot Location:
File: 1449909_01_Title.dgn
Plot Date: 07-JAN-2022 14:03

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	2	52

SUMMARY OF QUANTITIES

Item / Location	Mobilization (DBE) Lump Sum	Mobilization Lump Sum	Concrete Pavement (10" Uniform) (AE)(BR APP) Sq. Yds.	Bridge Approach Slab Footing Cu. Yds.	Rock Excavation Cu. Yds.	Temporary Shoring Lump Sum	Concrete (Grade 4.0) (AE) Cu. Yds.	Reinforcing Steel (Grade 60) (Epoxy Coated) Lbs.	Reinforcing Steel (Repair)(Grade 60) (Set Price) Lbs.	Bridge Painting (Organic Zinc w/ Acrylic System) Lump Sum	Environmental Protection Lump Sum	Portland Cement Concrete Overlay (1.75") Sq. Yds.**	Area Prepared for Patching (Partial Depth) Sq. Yds.**	Area Prepared for Patching (Full Depth) Sq. Yds.**	Machine Preparation (1.75") Sq. Yds.**	Bridge Backwall Protection System Sq. Yds.	Abutment Aggregate Drain Cu. Yds.	Concrete Surface Repair Sq. Ft.	Cleaning Existing Structure Lump Sum	Drilling & Grouting Each	Gutters (AE) Lin. Ft.	Bridge Deck Grooving Sq. Yds.**
Br. No. 61-78-55.11 (076) County Ref. Pt. 36.98			236	0	74	L.S.	3.5	220	1	* L.S.	L.S	1,536	150	50	1,536	142	185	62	L.S.	164	64	1,382
Br. No. 61-78-55.61 (079) County Ref. Pt. 37.48			938	28.2	268		12.5	720	1			2,462	250	70	2,462	0	0	6	L.S.	94	80	2,235
Total	L.S.	L.S.	1174	28.2	342																	

* Bridge Painting (Organic Zinc w/ Acrylic System) includes painting 14,600 lbs. structural steel on Bridge (076). No painting on Bridge (079).

GENERAL NOTES

BROKEN CONCRETE: Waste the broken concrete from the existing bridge on sites provided by the Contractor and approved by the Engineer.

TEMPORARY CONSTRUCTION LOADS: The Contractor will not stock pile construction materials, debris/rubble or place equipment weighing more than 20 tons or greater than bridge posted load limits on the bridge without prior written approval by the KDOT Area Engineer. For bridges with highway traffic on or under the bridge the Contractor will provide plans showing the location, quantity and weight of the proposed materials, debris or equipment weighing more than 20 tons or greater than bridge posted load limit. These plans will bear the Seal of the Contractor's Engineer before approval is granted. The Contractor's Engineer will use AASHTO Specifications for limitations on structural capacities, as the structure is found in the field.

CONSTRUCTION SPECIFICATIONS: All work shall be in accordance with the current edition of the Standard Specification for State Road and Bridge Construction, Kansas Department of Transportation.

APPROACH SLAB THERMAL MOVEMENT: See the "Construction Layout Sheet" for adjusted "W_2" value. "W" is the formed gap. See "Concrete Bridge Approach Pavement," Std. No.RD712 for "W_1" values.

CONCRETE: Slab concrete for patching is Concrete (Grade 4.0)(AE) (SA). Median Barrier concrete is Concrete (Grade 4.0)(AE). Bevel all exposed edges of all concrete with a 3/4 inch triangular molding, except as otherwise noted on the plans. Construction joints are optional with the Contractor, but if used, place only at locations shown, or at locations approved by the Engineer.

EXISTING BRIDGE PAINTING: Paint all girder ends in conformance with the KDOT Specifications. The structural steel has a paint history of:

1) Original paint system: Lead Based Date: 1973
2) Repaint system: None Date: N/A
3) Lead Based Paint - no TCLP Test

Prepare and paint structural steel as noted with an approved organic zinc primer with a waterborne acrylic finish coat. (The finish coat color shall match the existing paint).

Cleaning and painting girder ends shall be included in the bid item "Bridge Painting (Organic Zinc w/ Acrylic System)".

TEMPORARY SHORING: The bid item "Temporary Shoring" includes all labor and material necessary to furnish shoring at the location shown on the plans for the temporary bracing of the embankment during excavation. Maintain the temporary shoring until the Engineer authorizes its removal. The temporary shoring plans are to be designed and sealed by a registered Professional Engineer. Submit design calculations and shoring plans to the Field Engineer for review 6 weeks before work is scheduled to begin. Work shall not begin until the Engineer grants approval.

ABUTMENT AGGREGATE DRAIN: See the General Notes on the "Abutment Aggregate Drain" sheet.

BRIDGE BACKWALL PROTECTION SYSTEM: See the General Notes on the "Abutment Aggregate Drain" sheet.

MACHINE PREPARATION: Remove 1.75" of concrete from the deck to the limits shown. See KDOT Specifications.

PORTLAND CEMENT CONCRETE OVERLAY: This item shall consist of cleaning the concrete surface and placing the 1.75" Portland Cement Concrete Overlay. See KDOT Specifications. Approved microfibers shall be added to the Portland Cement Concrete Overlay (1.75") according to KDOT Specifications. The dosage rate for microfibers is 3 pounds per cubic yard. This material is not paid for directly, but is subsidiary to the bid items "Portland Cement Concrete Overlay (1.75")".

PORTLAND CEMENT CONCRETE OVERLAY CONSTRUCTION JOINTS: All vertical construction joints in the overlay and the vertical joint between the overlay and the curbs shall be cleaned by sandblasting, and then painting the joints with an approved Concrete Masonry Coating 72 hours after placement of the Portland Cement Concrete Overlay. This work is subsidiary to the overlay.

CLEANING EXISTING STRUCTURE: This work includes all labor and materials needed to flush out the existing expansion joints, drains, gutters and downspouts on Bridge (079); and regrading of the end of the 15" CMP at the SW corner of Bridge (076).

AREA PREPARED FOR PATCHING: This item shall consist of removing unsound concrete and asphalt patches from the bridge deck, cleaning reinforcing bars, filling the removed patched areas with concrete and preparing the entire area of the deck for the Portland Cement Concrete Overlay. Quantity shown is an estimate of the areas involved. The exact areas shall be determined by tapping, before, during and after chipping operation to ensure that all unsound concrete has been removed. See KDOT Specifications. Remove loose and unsound deck concrete and bituminous material as designated by the Engineer to whatever depth is necessary to reach sound concrete. See KDOT Specifications. The quantities for area prepared for patching are estimated to be 10% for each structure.

All materials removed from the existing structure shall become the property of the Contractor. Remove this material from the site.

Any existing reinforcing steel that is to remain that is damaged or cut by the Contractor shall be replaced by the Contractor at no additional cost to the State.

Clearly mark the location of the existing girder top flanges on the top of the existing deck concrete. Mark the entire length of all girders before removing any concrete. Use a jackhammer no heavier than 15 lb. to remove concrete above and within 2'-6" of either side of a girder centerline. Damage to the existing structural steel caused by procedures not conforming to the above recommendations shall be evaluated and repaired as directed by the Engineer at the Contractor's expense (no cost to State).

FULL DEPTH PATCHING: Forms shall be provided to enable placement of concrete in areas of full depth removal of bridge slab. The forms may be suspended from existing reinforcing bars by wire ties or a method approved by the Engineer may be used. The Contractor shall coordinate with the BNSF Railroad when patching is within their right of way. See KDOT Specifications for method of measurement and basis of payment.

REINFORCING IN BRIDGE DECK: Care should be exercised to prevent cutting, stretching or damaging exposed reinforcing steel. Extreme care should be exercised to avoid breaking the bond between the reinforcing steel and concrete where bars are partially exposed yet remain anchored in sound concrete. Reinforcing steel damaged, cut or deteriorated shall be replaced as directed by the Engineer. Do not wedge chipping hammer bit against reinforcement. See table for replacement bar size and minimum splice length required. Replacement of bars damaged by the Contractor shall be at no cost to the State.

DEMOLITION PLANS: This is a Category B Demolition. Submit detailed Demolition Plans to the Field Engineer at least 2 weeks before the demolition meeting. Identify, on the plans, the Demolition Supervisor meeting the requirements of the KDOT Specifications. No Demolition work will begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

CONSTRUCTION LOADS: Limited traffic is permitted on the concrete overlay during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

TEMPERATURE: The design temperature for all dimensions is 60° F.

REINFORCING STEEL: Existing bridge dimensions shall be field verified before ordering reinforcing steel. All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60. Reinforcing steel damaged, cut or deteriorated shall be replaced as directed by the Engineer. Replacement of the reinforcing steel damaged by the Contractor shall be at the Contractor's expense.

SAW CUTS: All saw cuts shall be subsidiary to other items in the contract.

QUANTITIES: Items not listed separately in the Summary of Quantities are subsidiary to other items in the proposal.

DIMENSIONS: All dimensions shown on the design plans are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

EXISTING STRUCTURE: Plans of the existing structures are on file and available for inspection by qualified bidders at the State Brige Office, KDOT, Eisenhower State Office Building, 700 SW Harrison, Topeka, KS.

UNIT STRESSES:
Concrete (Grade 4.0)(AE) f'c = 4 ksi
Concrete (Grade 4.0)(AE)(SA) f'c = 4 ksi
Reinforcing Steel (Grade 60) f'c = 60 ksi

See Sheet No. 25 for Pavement Marking Quantities.
See Sheet No. 47 for Traffic Control Quantities.
See Sheet No. 48 for Temporary Barrier Quantities.

SUMMARY OF QUANTITIES

Item / Location	Material for Portland Cement Concrete Overlay (Set Price) Cu. Yds.	Contractor Construction Staking Lump Sum
Br. No. 61-78-55.11 (076) County Ref. Pt. 36.98	1	
Br. No. 61-78-55.61 (079) County Ref. Pt. 37.48	1	
Total		L.S.

EXISTING DIMENSION VERIFICATION: Dimensions of the existing structure are based on old plans. The Contractor shall verify, by field measurement, the as-built dimensions of the existing structure and submit such verification in writing to the Engineer. The verification will include sketches, drawings, photographs and descriptions as needed to clearly define the as-built dimensions that will be incorporated in the new construction.

ENVIRONMENTAL PROTECTION: Use protection as shown in the KDOT Specifications. The Environmental Protection Structure Classification is Class A.

ROCK EXCAVATION: This item shall include removal of existing 10" concrete approach slab, existing asphalt pavement, existing curbs, and existing median barrier required for placement of the new concrete approach slabs.

DRILLING AND GROUTING: This item shall consist of grouting reinforcing steel, anchor bolts, tie bars, or dowel bars into the existing concrete, where required by the Engineer, with an epoxy grout. Follow KDOT Specifications 842 and any associated Special Provisions. Follow the manufacturer's directions for mixing, application and curing. The tools, materials, labor and incidentals necessary to complete the work shall be paid for per each by the bid item "Drilling and Grouting".

ASBESTOS INFORMATION: Samples of this structure were tested to determine the amount of Asbestos Containing Materials (ACM) present in the components. The results are listed below:

Concrete 0%
Date of Report September 20, 2021

For any result above greater than 1%, abatement shall be performed according to KDOT Specifications. Results less than 1% require no abatement.

BRIDGE DECK GROOVING: After the bridge deck has cured, transversely groove the deck in accordance with KDOT Specifications. For phased construction groove each completed phase before opening to traffic. Align the grooves from each adjacent phase across the bridge deck without jogs or discontinuities. For skewed bridges all grooving will be perpendicular to the centerline of the bridge.

** Work to be performed over Railroad R/W is equal to:
Portland Cement Concrete Overlay (1.75") (076) = 646 Sq. Yds.
Portland Cement Concrete Overlay (1.75") (079) = 1,118 Sq. Yds.
Area Prepared for Patching (076) = 46 Sq. Yds.
Area Prepared for Patching (079) = 82 Sq. Yds.
Area Prepared for Patching (Full Depth) (076) = 21 Sq. Yds.
Area Prepared for Patching (Full Depth) (079) = 32 Sq. Yds.
Machine Preparation (1.75") (076) = 646 Sq. Yds.
Machine Preparation (1.75") (079) = 1,118 Sq. Yds.
Bridge Deck Grooving (076) = 581 Sq. Yds.
Bridge Deck Grooving (079) = 1015 Sq. Yds.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 61-78-55.11 (076) Co. Ref. Pt. 36.98
Br. No. 61-78-55.61 (079) Co. Ref. Pt. 37.48
GENERAL NOTES AND QUANTITIES
K-61 OVER BNSF R.R.
Proj. 61-78 KA-6135-01 Reno Co.

SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

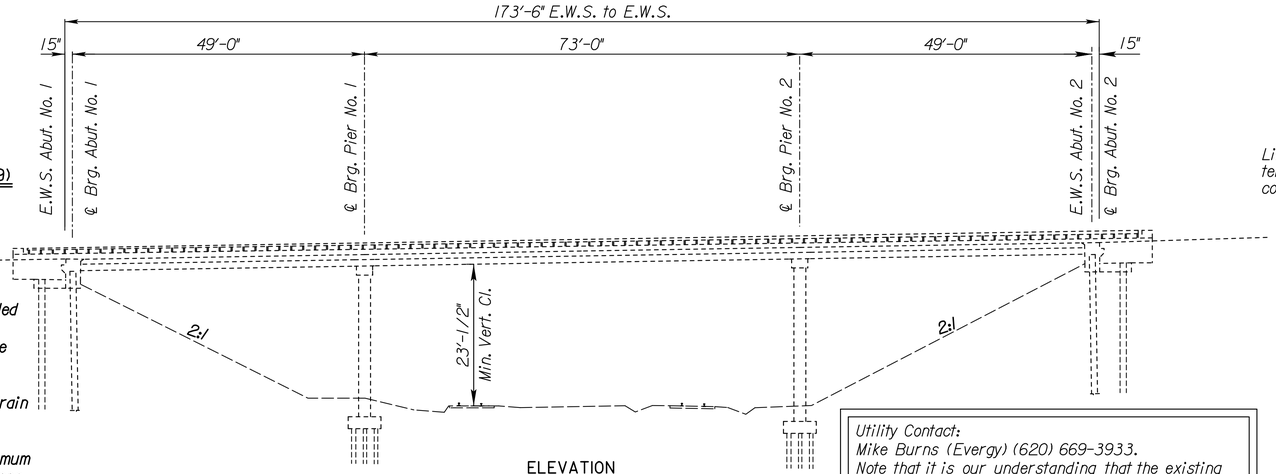
Plotted By: mbender Plot Location:
File: 1449909_02_Gen_Notes_&_Quantities.dgn
Plot Date: 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	3	52

RAILROAD PROTECTION: If removal of concrete is required through the full thickness of the deck (i.e. full depth patching, edge of slab removal, or complete deck replacement), then the Contractor shall execute the work in such a manner and take any precautions necessary to prohibit broken concrete and other debris from falling on and damaging the rails, ties, ballast or other railroad property. As much as possible, do the work so as not to interfere with the normal use of the tracks. The Railroad Company and the Engineer shall approve the methods of protection proposed by the Contractor before any work begins.

RAILROAD OVERHEAD STRUCTURE MAINTENANCE NOTES (BRIDGES 076 & 079)

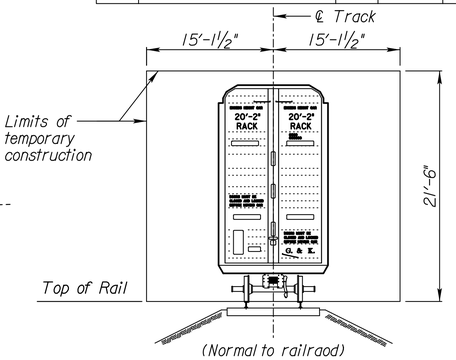
1. All permanent clearances shall be verified before project closing.
2. The contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad.
3. All shoring systems within Railroad right-of-way or that may impact the Railroad's operations and/or supports the Railroad's embankment shall be designed and constructed per current Railroad Guidelines for Temporary Shoring.
4. The contractor shall submit and provide sufficient safety measures to protect unattended excavations to the Railroad for approval.
5. All demolitions/removals within the Railroad's right-of-way and/or that may impact the Railroad's tracks or operations shall comply with the current Railroad Demolition Guidelines.
6. Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site, and all personnel must clear the area within 25 feet of the track centerline and secure all equipment.
7. Construction activities, including falsework/formwork, are not allowed within the "Minimum Construction Clearance Envelope" as they would otherwise disrupt Railroad operations.



ELEVATION

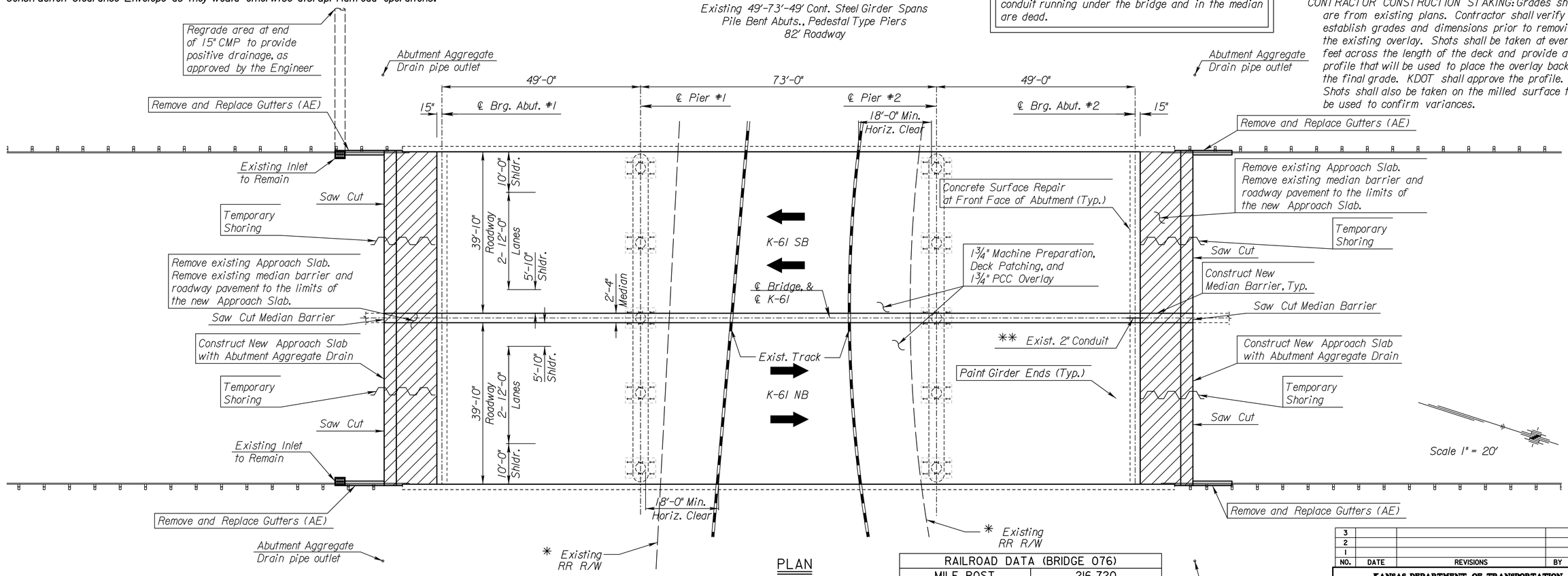
Existing 49'-73'-49' Cont. Steel Girder Spans
Pile Bent Abuts., Pedestal Type Piers
82' Roadway

Utility Contact:
Mike Burns (Evergy) (620) 669-3933.
Note that it is our understanding that the existing conduit running under the bridge and in the median are dead.



MINIMUM CONSTRUCTION CLEARANCE DETAILS (BRIDGES 076 & 079)

CONTRACTOR CONSTRUCTION STAKING: Grades shown are from existing plans. Contractor shall verify and establish grades and dimensions prior to removing the existing overlay. Shots shall be taken at every 5 feet across the length of the deck and provide a profile that will be used to place the overlay back to the final grade. KDOT shall approve the profile. Shots shall also be taken on the milled surface to be used to confirm variances.



PLAN

* *Approximate Railroad R/W based on original plans.*

** *Remove the existing conduit that conflicts with the new abutment backwall system/strip drain aggregate.*

Remove the junction box on the bridge side of the abutment and patch the remaining hole through the abutment backwall.

Removal of the existing conduit and junction box shall be subsidiary to the bid item "Abutment Backwall System". All labor and materials to patch the abutment backwall shall be paid for as "Concrete Surface Repair".

Note:
Contractor shall not disturb existing guardrail.
Any damage or removals for the convenience of the Contractor shall be repaired at no expense to the State.

RAILROAD DATA (BRIDGE 076)	
MILE POST	216.720
SUBDIVISION	LA JUNTA
CITY	HUTCHINSON
COUNTY	RENO
STATE	KANSAS
LATITUDE	38.0460450
LONGITUDE	-97.904861

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.11 (076) Co. Ref. Pt. 36.98

CONSTRUCTION LAYOUT BRIDGE (076)
K-61 OVER BNSF R.R.

Proj. 61-78 KA-6135-01 Reno Co.

SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: mbender | Plot Location:
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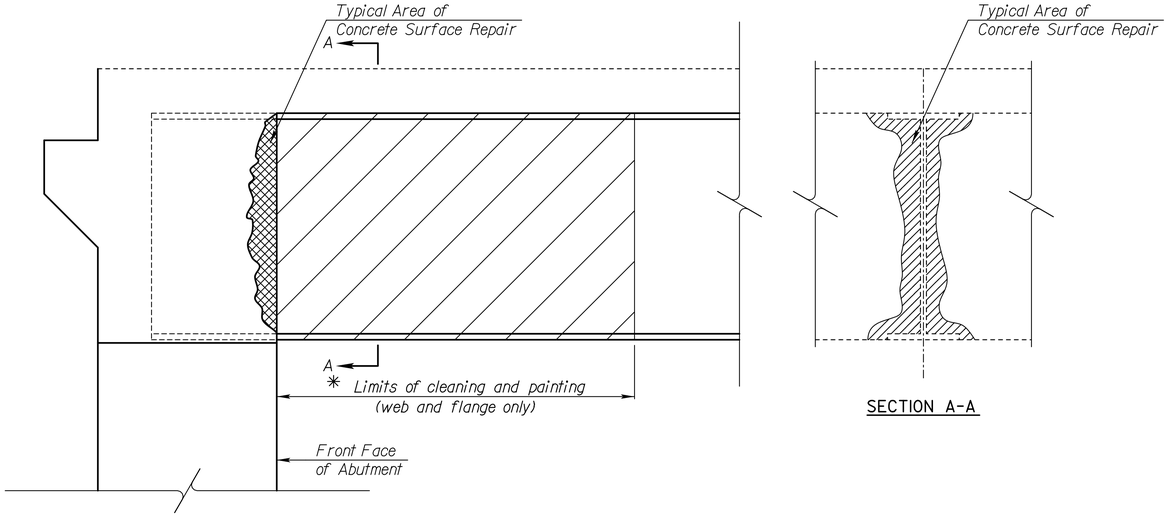
Plot Date: 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	4	52

CONCRETE SURFACE REPAIR: The Contractor shall remove all deteriorated or damaged concrete delineated by the Engineer. Additional concrete shall be removed to create a minimum thickness of new concrete of 1 inch. Do not feather edges. At repair locations, the concrete shall be removed from 3/4" around the reinforcing steel near the surface of the barrier rail to allow a positive bond of new concrete to the existing structure. Concrete (Grade 4.0) (AE) or an approved Shotcrete shall be used. Prior to its placement, an epoxy resin for bonding new concrete to existing concrete shall be used. The removal of deteriorated or damaged concrete, placement of new concrete, and all labor, materials, equipment, and incidentals necessary to complete the repairs shall be paid for as "Concrete Surface Repair" (Sq. Ft.).

CONCRETE SURFACE REPAIR QUANTITIES	
SOUTH ABUTMENT	NORTH ABUTMENT
23 ft²	39 ft²



TYPICAL GIRDER ELEVATION

SECTION A-A

* LIMITS OF CLEANING AND PAINTING			
SOUTH ABUTMENT		NORTH ABUTMENT	
GIRDER #	*	GIRDER #	*
1 (WEST)	5'	1 (WEST)	5'
2	5'	2	5'
3	5'	3	5'
4	5'	4	5'
5	5'	5	5'
6	5'	6	5'
7	5'	7	5'
8	5'	8	17'
9	5'	9	17'
10 (EAST)	5'	10 (EAST)	17'

Plotted By: mbender
Plot Location:
File: 1449909_04_078-076_Painting_Girder_Ends.dgn
Plot Date: 07-JAN-2022 14:04

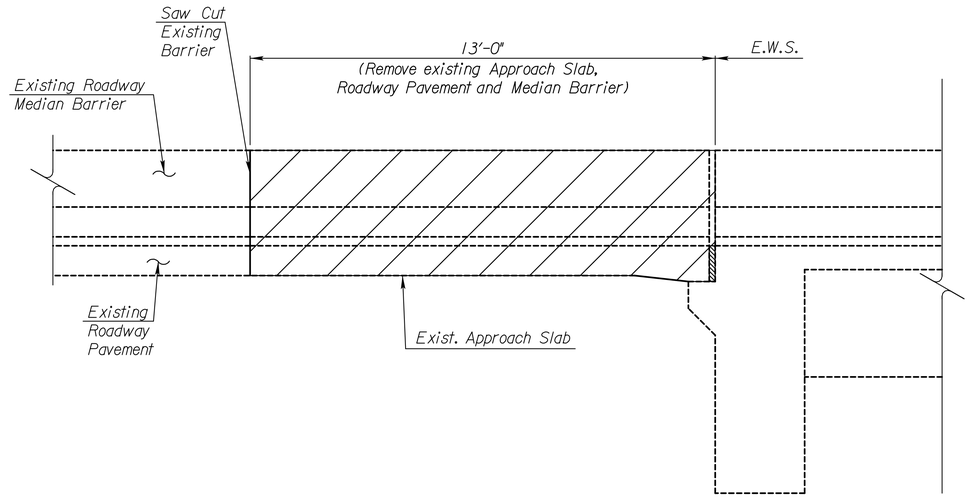
NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 61-78-55.11(076) Co. Ref. Pt. 36.98

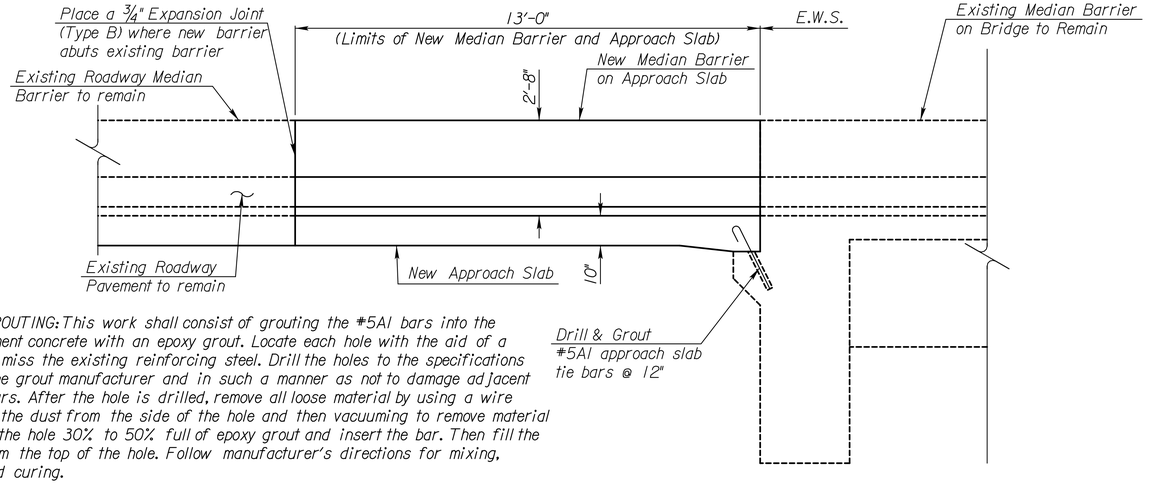
DETAILS AT GIRDER ENDS
K-61 OVER BNSF R.R.
Proj. 61-78 KA-6135-01 Reno Co.

SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	5	52



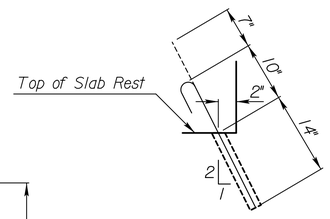
ELEVATION OF MEDIAN BARRIER AND APPROACH SLAB REMOVAL



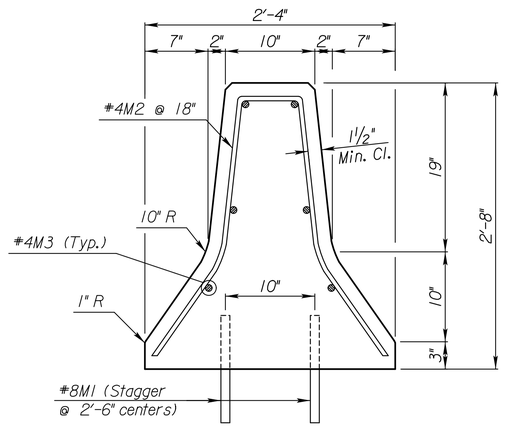
DRILLING & GROUTING: This work shall consist of grouting the #5A1 bars into the existing abutment concrete with an epoxy grout. Locate each hole with the aid of a pachometer to miss the existing reinforcing steel. Drill the holes to the specifications required by the grout manufacturer and in such a manner as not to damage adjacent concrete or bars. After the hole is drilled, remove all loose material by using a wire brush to free the dust from the side of the hole and then vacuuming to remove material and dust. Fill the hole 30% to 50% full of epoxy grout and insert the bar. Then fill the hole to 1/4" from the top of the hole. Follow manufacturer's directions for mixing, application and curing.

Cost of supplying and installing 164- #5A1 bars is subsidiary to bid item "Drilling & Grouting".

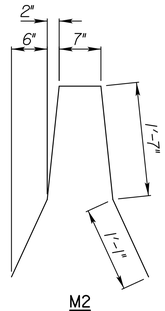
ELEVATION OF MEDIAN BARRIER AND APPROACH SLAB CONSTRUCTION



A1

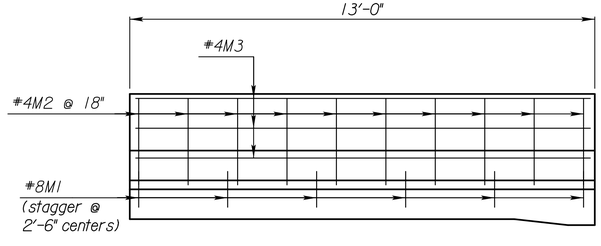


TYPICAL SECTION THROUGH MEDIAN BARRIER



M2

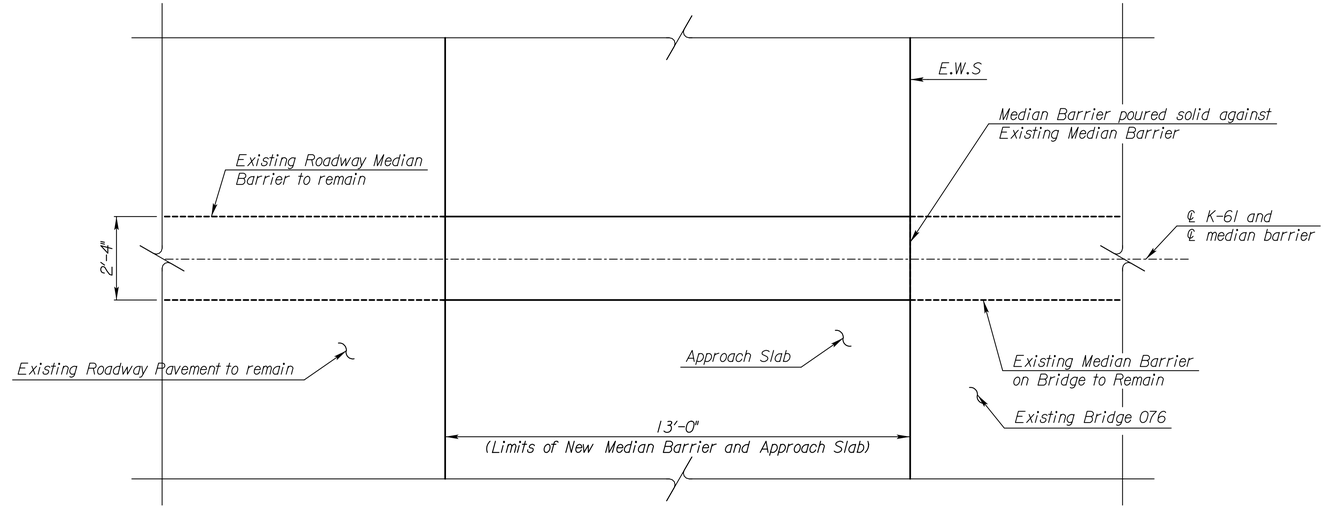
BAR BENDING DIAGRAMS



ELEVATION OF MEDIAN BARRIER SHOWING REINFORCEMENT

BILL OF REINFORCING STEEL *							
STRAIGHT BARS				BENT BARS			
Mark	No.	Size	Length	Mark	No.	Size	Length
M1	12	#8	1'-0"	M2	20	#4	5'-11"
M3	12	#4	12'-8"				

* Reinforcing steel quantities shown include Median Barrier on both North and South Approach Slabs



PLAN OF MEDIAN BARRIER AND APPROACH SLAB CONSTRUCTION

Summary of Quantities - Median Barrier Bridge (076)
Concrete (Grade 4.0)(AE) = 3.5 Cu. Yds.
Reinforcing Steel (Grade 60)(Epoxy Coated) = 220 lbs.

Note: These quantites are included in the Summary of Quantities Table shown on Sheet 2.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.11(076) Co. Ref. Pt. 36.98

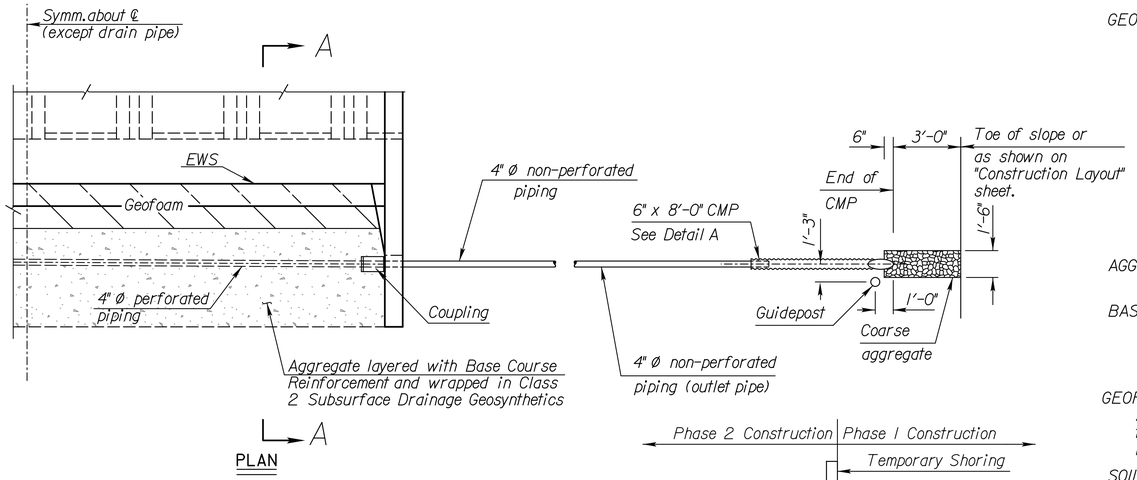
MEDIAN BARRIER BRIDGE (076)
K-61 OVER BNSF R.R.

Proj. 61-78 KA-6135-01 Reno Co.

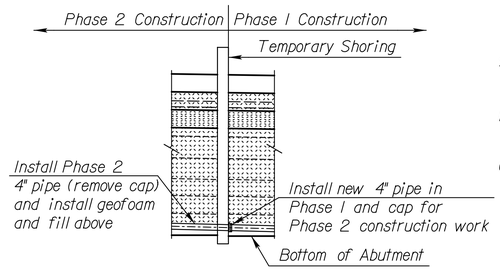
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: mbender | Plot Location:
File: 1449909_05_078-076_Median_Barrier_Details.dgn
Plot Date: 07-JAN-2022 14:04

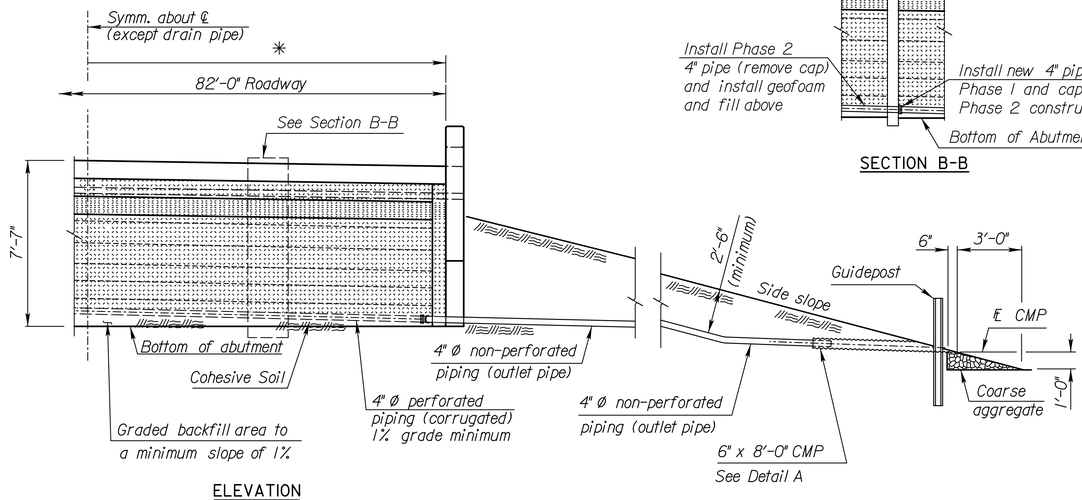
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	6	52



PLAN

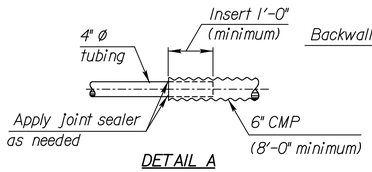


SECTION B-B



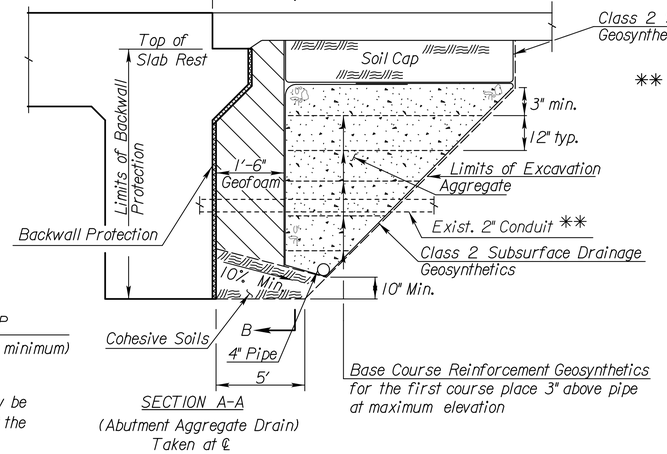
ELEVATION

* Limits of Bridge Backwall Protection System & Geofoam



DETAIL A

Note: The 1'-0" lap and joint sealer may be replaced by a reducing coupler at the junction of the CMP and the 4" round tubing.



SECTION A-A
(Abutment Aggregate Drain)
Taken at ℄

** Remove the existing conduit that conflicts with the new abutment backwall system/strip drain aggregate.

Remove the junction box on the bridge side of the abutment and patch the remaining hole through the abutment backwall.

All labor and materials required to accomplish this work shall be subsidiary to the bid item "Abutment Aggregate Drain".

GENERAL NOTES

GEOSYNTHETICS: Use material that complies with KDOT Specification Section 1710 Class 2 subsurface drainage fabric. Place the Class 2 subsurface drainage fabric on graded and compacted material shaped as shown. Allow for enough material so that the top can be overlapped and the end folded to completely enclose the aggregate drain. Place the perforated drain pipe and couple to non-perforated pipe as shown. Allow the non-perforated pipe to pass through a hole carefully cut in fabric. Place aggregate within fabric to just leave the top of the pipe visible. Verify the slope of the pipe, that it is not damaged or displaced and that the couplers are firmly coupled. Continue to back fill to the elevation and shape shown. Lap the top of the fabric a minimum of 3'-0", fold and wrap the ends to enclose the drainage materials. Secure the folds and wraps by sewing or approved methods.

AGGREGATE: Use aggregates that complies with KDOT Specifications for SB-1 or SB-2.

BASE COURSE REINFORCEMENT: Use "Base Course Reinforcement" that complies with KDOT Specification Division 1700 or approved material. Place this material in uniform layers without gaps or sags per the manufacturer's recommendations.

GEOFOAM: Use "Geofoam" that complies with ASTM D6817 EPS 12. Acceptance according to Type "C" certification. Bond this material to the back wall protection using materials recommended by the manufacturer.

SOIL CAP: The soil will have a Unified Soil Classification of CL or ML according to ASTM D2487. Compact to Type A, MR-90.

PIPE: Place perforated pipe within the limits and use non-perforated pipe outside the limits of the Abutment Aggregate Drain.

CONCRETE RIPRAP: Any concrete riprap that is required to be removed to place the outlet pipe shall be replaced in-kind. Cost of this work shall be subsidiary to the bid item "Abutment Aggregate Drain".

ABUTMENT AGGREGATE DRAIN: The Bridge Contractor shall excavate to the limits required to construct the Abutment Aggregate Drain as shown on this sheet. Excavation is subsidiary to this bid item. Excavated soil shall become the property of the contractor and shall be removed from the site. Backfill, compact & grade the cohesive soil to the limits shown. Place the bridge backwall protection, geofoam, geotextile, perforated pipe, alternating layers of aggregate and base course reinforcement as shown. Place the outlet pipe, the CMP, and the backfill. Guide post and coarse aggregate are subsidiary to this bid item. Guide post and coarse aggregate are not required if the CMP empties onto Slope Protection. Enclose the entire Abutment Aggregate Drain with the geotextile

BRIDGE BACKWALL PROTECTION SYSTEM: Apply a non coal-tar Bridge Backwall Protective System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments and wings to the limits shown on the details. Repair any damage done at no charge to the state.

Compact the abutment backfill. See the KDOT Specifications.

Perforated pipe and non-perforated outlet pipe shall be corrugated polyethylene tubing conforming to the KDOT Specifications.

Fit the CMP end section with 1/4" galvanized mesh screen to prevent the entrance of rodents. Seal the joint between the outlet pipe and the end section with a joint sealer. Place Coarse aggregate at the outlet end as shown.

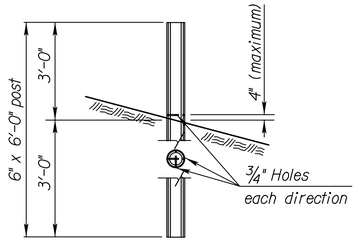
COHESIVE SOILS: Grade the bottom surface of the excavated area to drain as shown. Backfill this area with a cohesive type of soil. The soil will have a Unified Soil Classification of CL, CH, ML or MH according to ASTM D2487. Classification System with a minimum plasticity index of 13. Compact the material to Type A, MR-90 specifications. If the plasticity index cannot be met add and mix Bentonite, to the soil prior to placement and compaction so that the PI≥ 13.

GUIDE POST

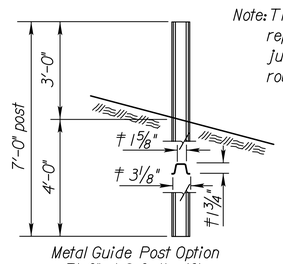
Notes:

Wood Guide Posts: Apply a preservative treatment conforming to the KDOT Specifications to the posts. Use only one type of preservative treatment on a project. Apply two coats of aluminum paint to the top 18" of the posts. Apply one coat of International Orange paint to the top 12" of the posts. State forces will apply reflectorized material.

Metal Guide Posts: Posts shall conform to the KDOT Specifications. Posts shall have a galvanized or baked enamel coating. Apply one coat of International Orange paint to the top 12" of the posts.



Wood Guide Post Option
(6" Ø x 6'-0")



Metal Guide Post Option
7'-0" at 3.0 lbs/ft.
flanged channel

≠ Nominal dimension.

SUMMARY OF QUANTITIES (2 Abutments)	
Abutment Aggregate Drain	185 Cu. Yds.
Bridge Backwall Protection System	142 Sq. Yds.
Items subsidiary to Abutment Aggregate Drain	
4" Ø Perforated Pipe	164 Lin. Ft.
4" Ø Outlet Pipe	28 Lin. Ft.
6" Ø CMP	32 Lin. Ft.
Guide Post	4 Each
Soil Cap	55 Cu. Yds.
Geosynthetics (Class 2 Subsurface Drainage)	1,009 Sq. Yds.
Geosynthetics (Base Course Reinforcement)	1,442 Sq. Yds.
Geofoam	56 Cu. Yds.

NO.	DATE	REVISIONS	BY	APP'D
7	12/11/18	Corrected std. base file name	MLL	JPJ
6	2/4/15	Modified Per 2015 Specification	JPJ	CER
5	11/18/14	Removed SB-3	JPJ	CER
4	4/7/14	Current Release	JPJ	CER
3	2/12/14	Geofoam Type Change Added Benchmark	JPJ	CER
2	8/20/13	Geofoam Dimension Change	JPJ	TLF
1	7/23/12	Added Soil Cap to Summary	JPJ	TLF

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.11(076) Co. Ref. Pt. 36.98

ABUTMENT AGGREGATE DRAIN
K-61 OVER BNSF R.R.

Proj. 61-78 KA-6135-01 Reno Co.

SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: mbender Plot Location:
File: 1449909_06_078-076_Abutment_Agg_Drain.dgn
Plot Date: 07-JAN-2022 14:04

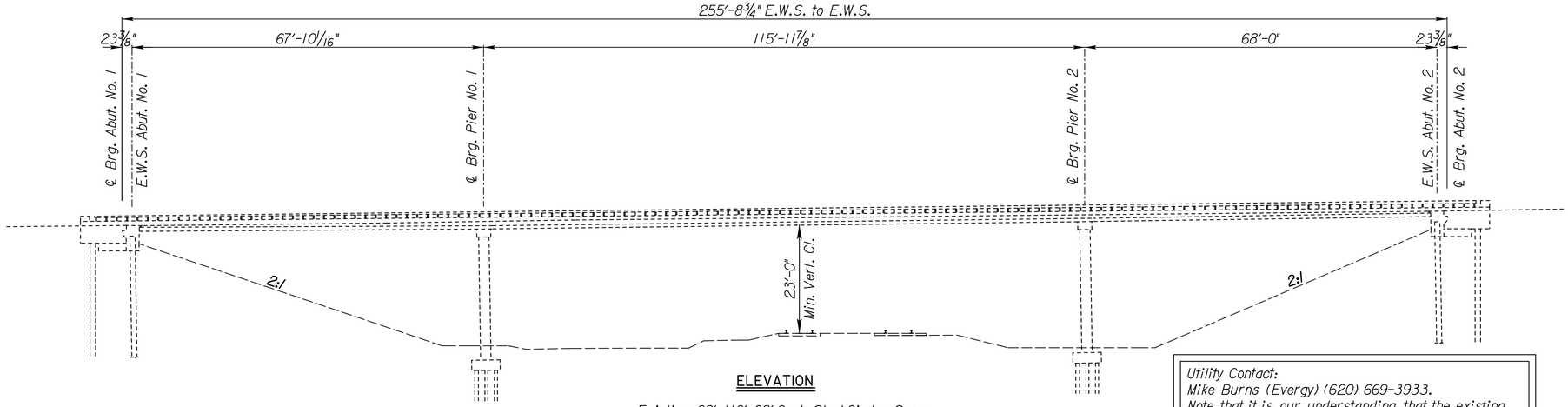
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	7	52

CONTRACTOR CONSTRUCTION STAKING: Grades shown are from existing plans. Contractor shall verify and establish grades and dimensions prior to removing the existing overlay. Shots shall be taken at every 5 feet across the length of the deck and provide a profile that will be used to place the overlay back to the final grade. KDOT shall approve the profile. Shots shall also be taken on the milled surface to be used to confirm variances.

NOTE:
For Railroad Minimum Construction Clearance Details, Railroad Protection and Railroad Overhead Structure Maintenance Notes, see Sheet No. 3 "Construction Layout Bridge (076).

EXPANSION JOINT WIDTH DETAILS (W2)						
Ψ Temperature (F°)	40°	50°	60°	70°	80°	90°
Formed Concrete Opening Size	3 3/4"	3 5/8"	3 1/2"	3 3/8"	3 1/4"	3 1/8"

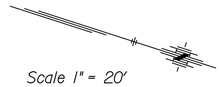
Ψ Average Ambient Temperature over previous 24 hours.

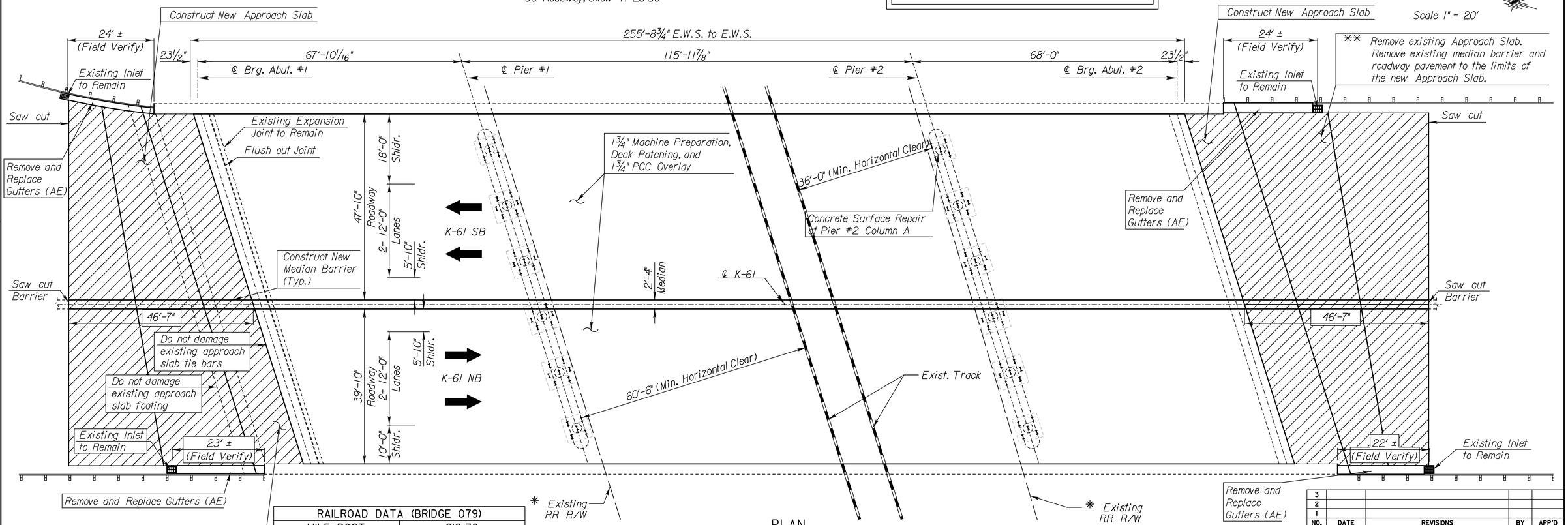


ELEVATION

Existing 68'-116'-68' Cont. Steel Girder Spans
Pile Bent Abuts., Pedestal Type Piers
90° Roadway, Skew 17°26'30"

Utility Contact:
Mike Burns (Evergy) (620) 669-3933.
Note that it is our understanding that the existing conduit running under the bridge and in the median are dead.





PLAN

RAILROAD DATA (BRIDGE 079)	
MILE POST	216.70
SUBDIVISION	LA JUNTA
CITY	HUTCHINSON
COUNTY	RENO
STATE	KANSAS
LATITUDE	38.0527740
LONGITUDE	-97.906282

** Remove existing Approach Slab. Remove existing median barrier and roadway pavement to the limits of the new Approach Slab.

Note:
Contractor shall not disturb existing guardrail. Any damage or removals for the convenience of the Contractor shall be repaired at no expense to the State.

* Approximate Railroad R/W based on original plans.

** The existing conduit under the approach median may be removed if it conflicts with the new approach slab work.

If existing conduit is removed, the removal is subsidiary to the bid item "Rock Excavation".

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

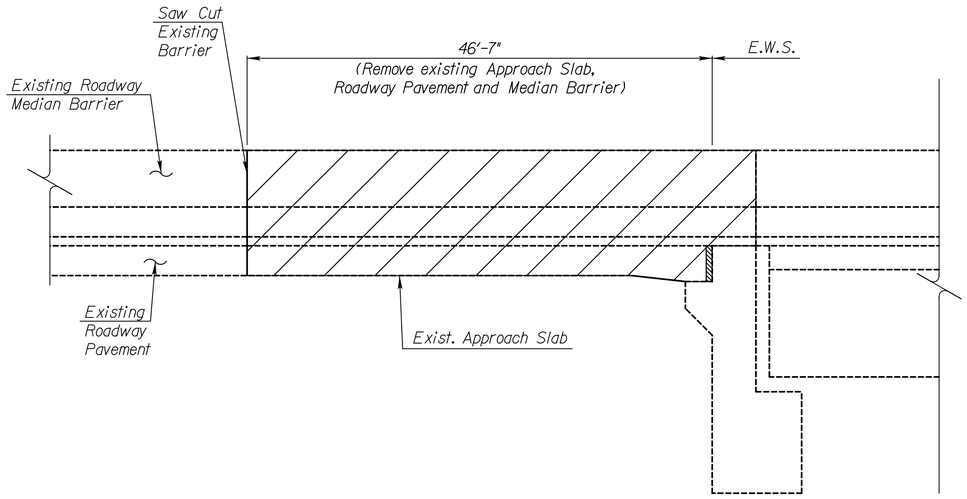
KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 61-78-55.61(079) Co. Ref. Pt. 37.48

CONSTRUCTION LAYOUT BRIDGE (079)
K-61 OVER BNSF R.R.
Proj. 61-78 KA-6135-01 Reno Co.

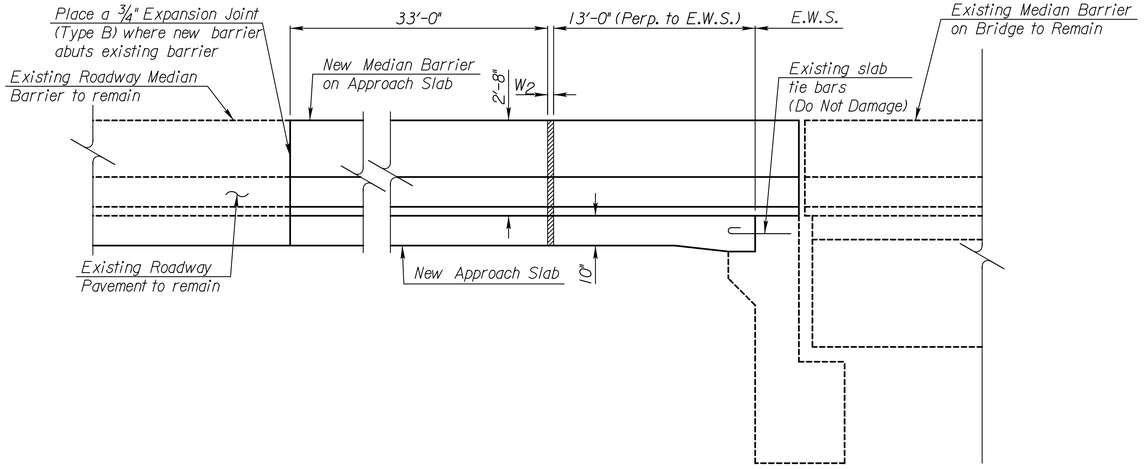
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plot Location:
Plotted By: mbender
File: 1449909_07_078-079_Con_Lay.dgn
Plot Date: 07-JAN-2022 14:04

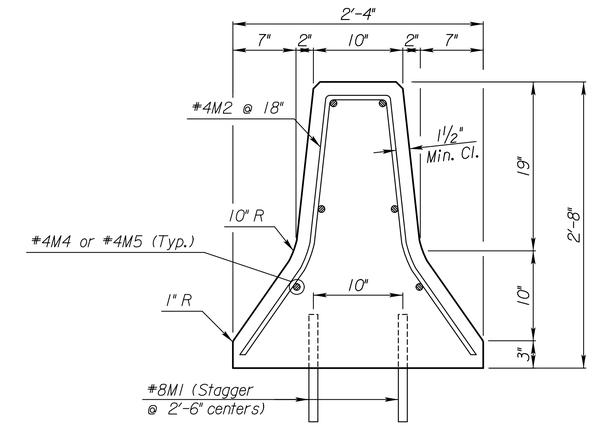
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	8	52



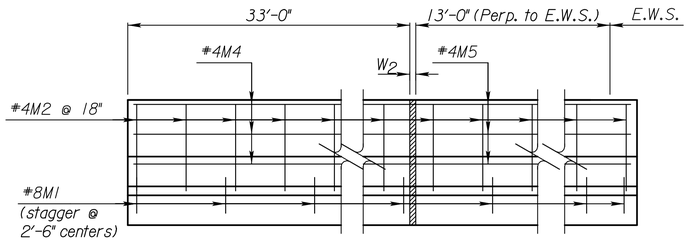
ELEVATION OF MEDIAN BARRIER AND APPROACH SLAB REMOVAL



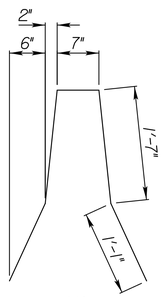
ELEVATION OF MEDIAN BARRIER AND APPROACH SLAB CONSTRUCTION



TYPICAL SECTION THROUGH MEDIAN BARRIER

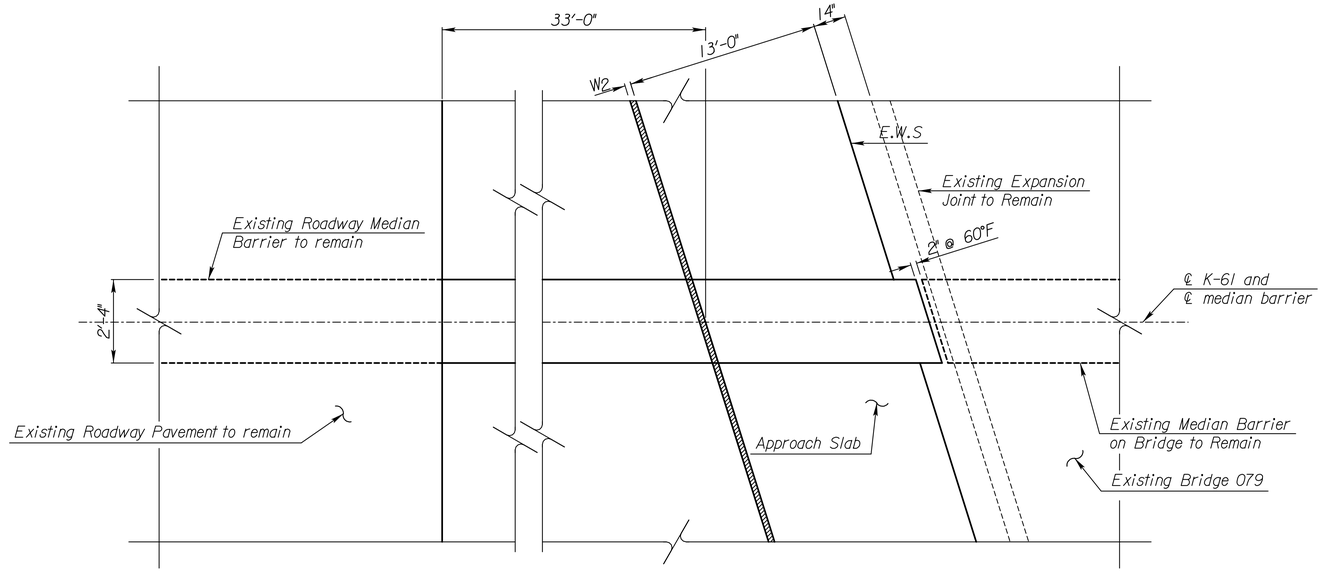


ELEVATION OF BARRIER SHOWING REINFORCEMENT



M2

BAR BENDING DIAGRAMS



PLAN OF MEDIAN BARRIER AND APPROACH SLAB CONSTRUCTION

BILL OF REINFORCING STEEL

STRAIGHT BARS				BENT BARS			
Mark	No.	Size	Length	Mark	No.	Size	Length
M1	19	#8	1'-0"	M2	32	#4	5'-11"
M4	6	#4	32'-4"				
M5	6	#4	13'-9"				

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.61(079) Co. Ref. Pt. 37.48

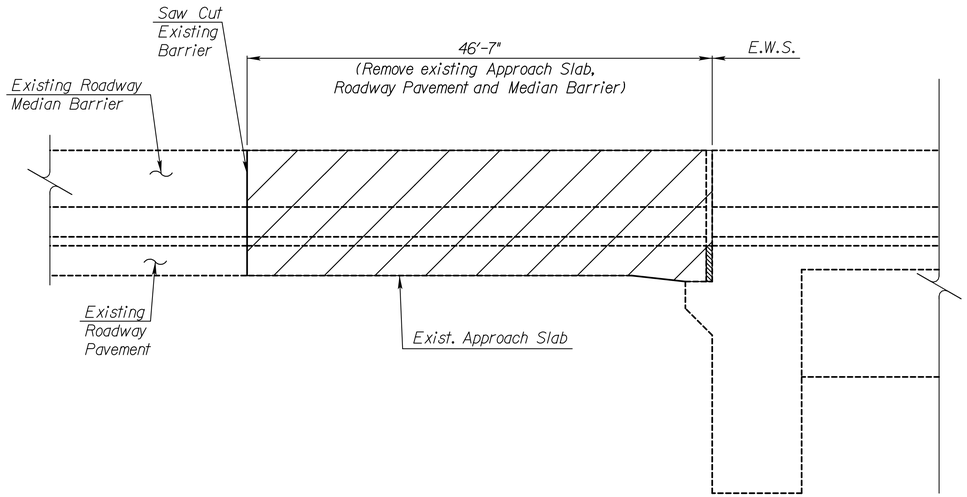
SOUTH MEDIAN BARRIER BRIDGE (079)
K-61 OVER BNSF R.R.

Proj. 61-78 KA-6135-01 Reno Co.

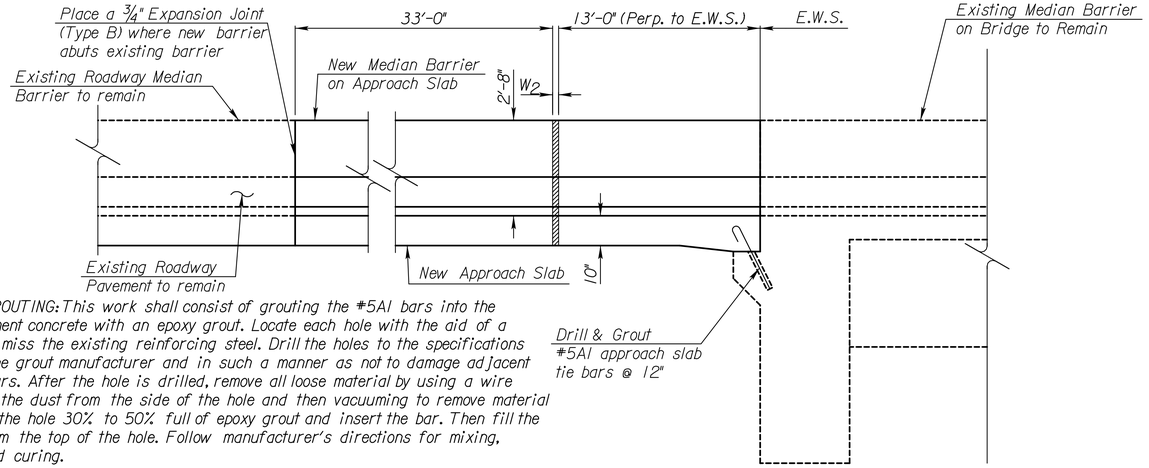
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: mbender
Plot Location:
File: 1449909_08_078-079_South_Median_Barrier_Details.dgn
Plot Date: 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	9	52



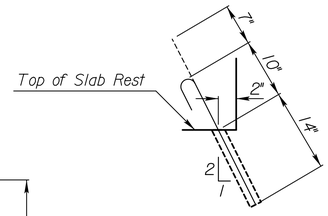
ELEVATION OF MEDIAN BARRIER AND APPROACH SLAB REMOVAL



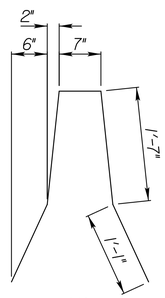
DRILLING & GROUTING: This work shall consist of grouting the #5AI bars into the existing abutment concrete with an epoxy grout. Locate each hole with the aid of a pachometer to miss the existing reinforcing steel. Drill the holes to the specifications required by the grout manufacturer and in such a manner as not to damage adjacent concrete or bars. After the hole is drilled, remove all loose material by using a wire brush to free the dust from the side of the hole and then vacuuming to remove material and dust. Fill the hole 30% to 50% full of epoxy grout and insert the bar. Then fill the hole to 1/4" from the top of the hole. Follow manufacturer's directions for mixing, application and curing.

Cost of supplying and installing 94- #5AI bars is subsidiary to bid item "Drilling & Grouting".

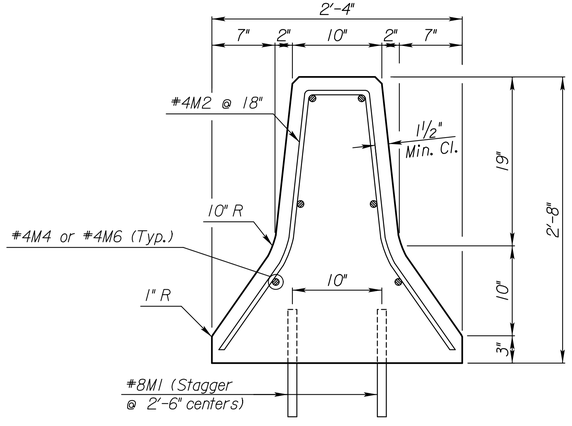
ELEVATION OF MEDIAN BARRIER AND APPROACH SLAB CONSTRUCTION



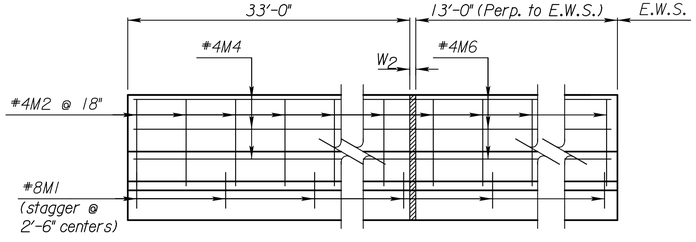
A1



M2



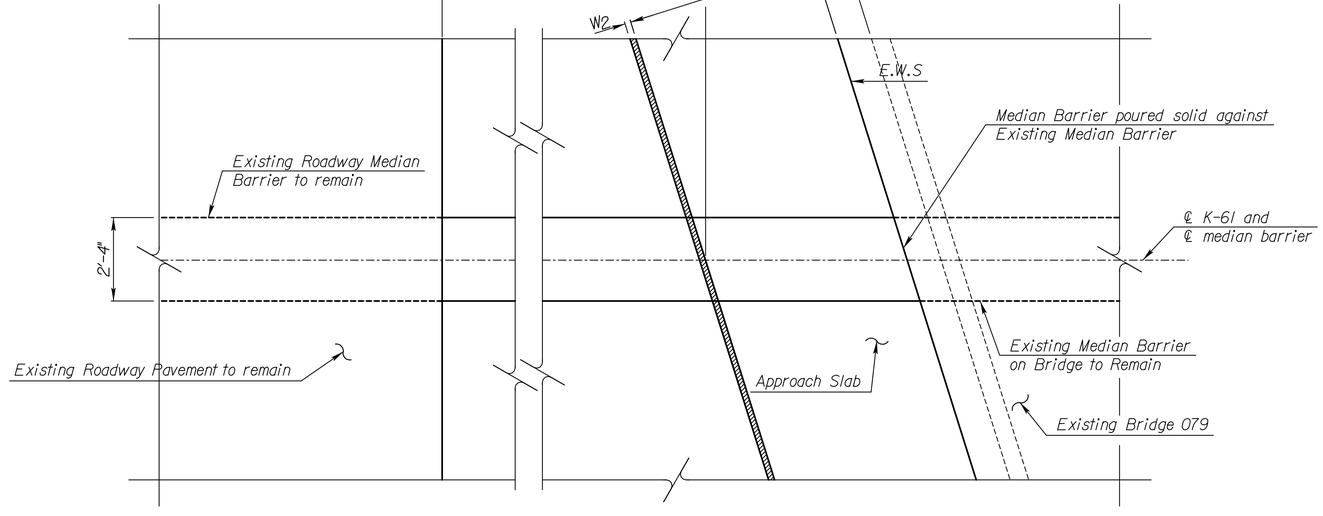
TYPICAL SECTION THROUGH MEDIAN BARRIER



ELEVATION OF BARRIER SHOWING REINFORCEMENT

BAR BENDING DIAGRAMS

BILL OF REINFORCING STEEL							
STRAIGHT BARS				BENT BARS			
Mark	No.	Size	Length	Mark	No.	Size	Length
M1	19	#8	1'-0"	M2	32	#4	5'-11"
M4	6	#4	32'-4"				
M6	6	#4	13'-0"				



PLAN OF MEDIAN BARRIER AND APPROACH SLAB CONSTRUCTION

Summary of Quantities - Median Barrier Bridge (079)
Concrete (Grade 4.0)(AE) = 12.5 Cu. Yds. Reinforcing Steel (Grade 60)(Epoxy Coated) = 720 lbs.

Note: These quantites are included in the Summary of Quantities Table shown on Sheet 2.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.61(079) Co. Ref. Pt. 37.48

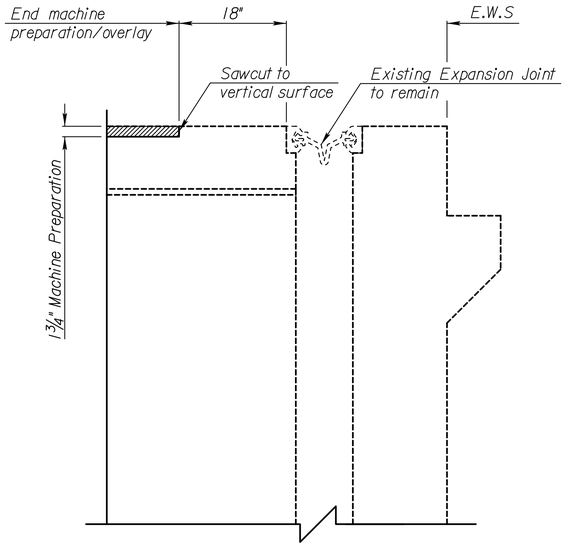
NORTH MEDIAN BARRIER BRIDGE (079)
K-61 OVER BNSF R.R.

Proj. 61-78 KA-6135-01 Reno Co.

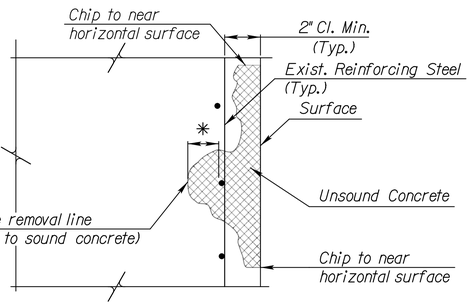
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: mbender | Plot Location:
File: 1449909_09_078-079_North_Median_Barrier_Details.dgn
Plot Date: 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	10	52



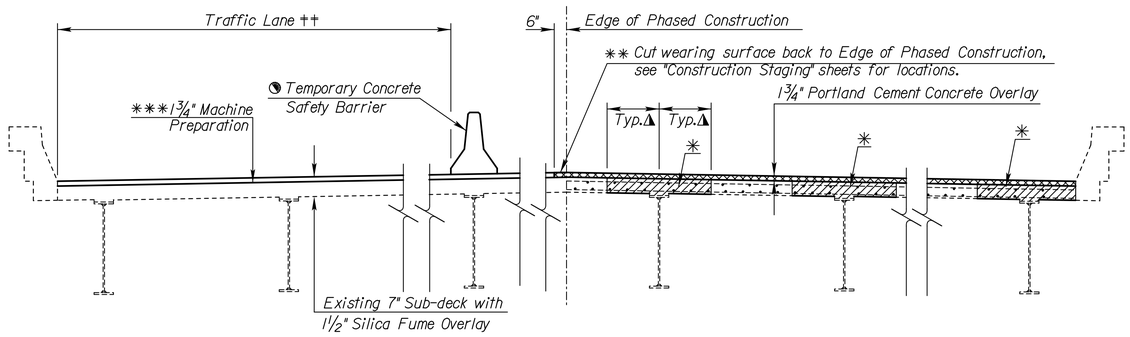
MILLING / OVERLAY DETAIL AT SOUTH ABUTMENT BRIDGE (079)



* Where reinforcing steel is exposed, the concrete removal shall extend ¾" minimum around the bar.

CONCRETE SURFACE REPAIR DETAIL BRIDGE (079)

Repair delaminated and spalled (6 Sq. Ft.) concrete Pier No. 2 Column A for Bridge (079).



◔ The type of traffic delineator to be used is found in the traffic control sheets.

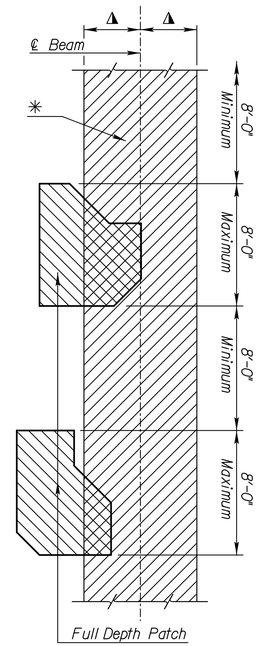
†† See "Construction Staging" sheet for traffic lane and roadway widths.

Δ Girder Spacing /4 or as directed by the Engineer.

** Note: Cutting the wearing surface back to Edge of Phased Construction, concrete removal, all material, equipment, and labor necessary for this item shall be subsidiary to other items.

*** Machine preparation 1¾"± nominal thickness to remove previous Silica-Fume Overlay.

* PATCHING SEQUENCE: When large areas of full depth patches are needed, they shall be patched in segments. If full depth patches intrude into this effective flange width area, the segments shall be a maximum of 8'-0" in length parallel to the centerline of bridge with a minimum of 8'-0" parallel to the centerline of bridge between segments. After the initial patches have cured, the areas between the initial segments shall be patched. The segmental patching will not be required if adequate shoring is provided to support the deck, curbs and beams. (See "SEQUENCE DETAIL" on this sheet).



SEQUENCE DETAIL

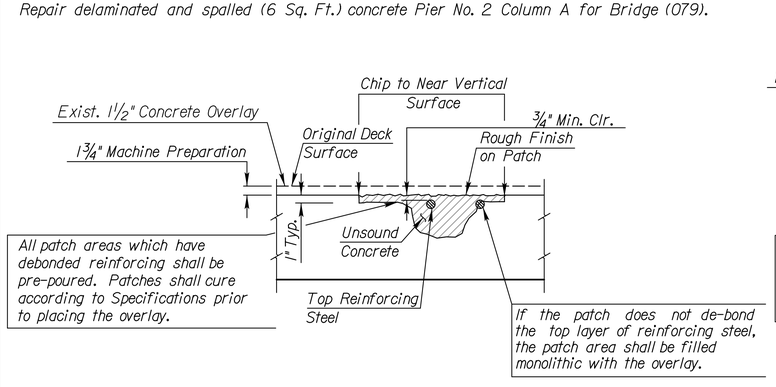
CONCRETE SURFACE REPAIR: The Contractor shall remove all deteriorated or damaged concrete delineated by the Engineer. Additional concrete shall be removed to create a minimum thickness of new concrete of 1 inch. Do not feather edges. At repair locations, the concrete shall be removed from ¾" around the reinforcing steel near the surface of the barrier rail to allow a positive bond of new concrete to the existing structure. Concrete (Grade 4.0) (AE) or an approved Shotcrete shall be used. Prior to its placement, an epoxy resin for bonding new concrete to existing concrete shall be used. The removal of deteriorated or damaged concrete, placement of new concrete, and all labor, materials, equipment, and incidentals necessary to complete the repairs shall be paid for as "Concrete Surface Repair" (Sq. Ft.).

◪ MINIMUM REBAR SPLICE LENGTHS

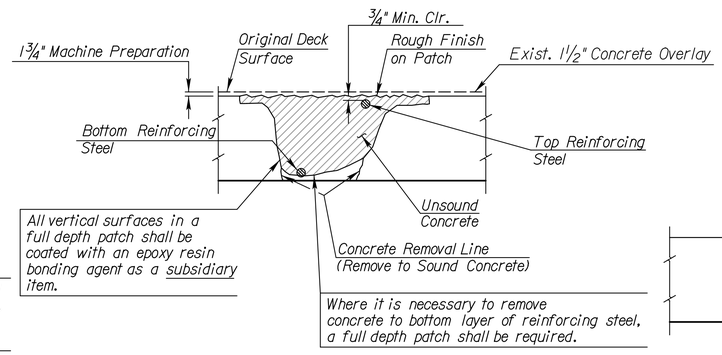
Existing Bar Size	Minimum Splice Lengths (inches)	
	Existing Gr. 40 ksi Bars	Existing Gr. 60 ksi Bars
#4	12"	16"
#5	13"	20"
#6	16"	24"
#7	20"	30"
#8	26"	39"
#9	33"	49"
#10	42"	62"
#11	51"	77"

Note: If splicing epoxy coated reinforcing steel, increase the above splice lengths by 20%.

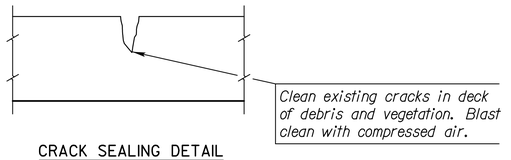
◪ Lap lengths are based on a Class B splice. Use the minimum splice length corresponding to the grade of the existing reinforcing in the deck.



PARTIAL DEPTH PATCHING



FULL DEPTH PATCHING



CRACK SEALING DETAIL

DECK PATCHING DETAILS

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.11 (076) Co. Ref. Pt. 36.98

Br. No. 61-78-55.61 (079) Co. Ref. Pt. 37.48

DECK PATCHING DETAILS

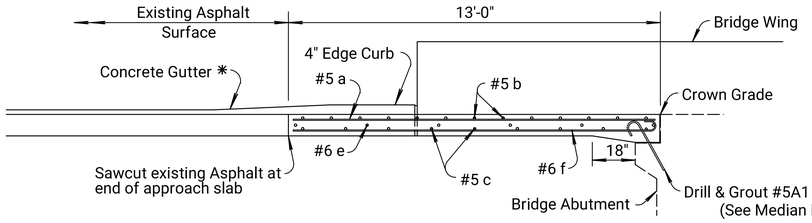
K-61 OVER BNSF R.R.

Proj. 61-78 KA-6135-01 Reno Co.

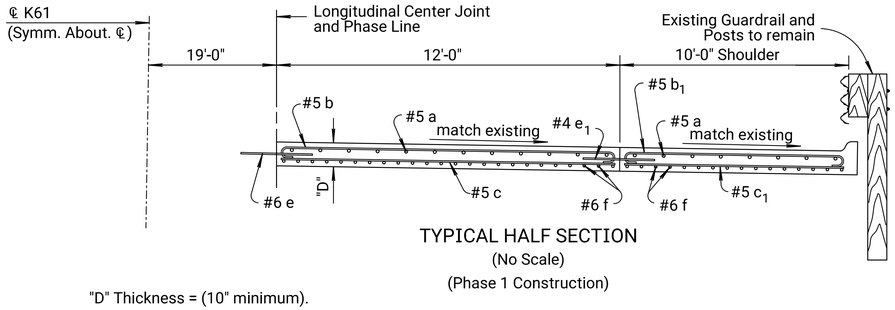
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: mbender
File: 1449909_10_078-079_Deck_Patching .dgn
Plot Date: 07-JAN-2022 14:04
Plot Location:

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	11	52

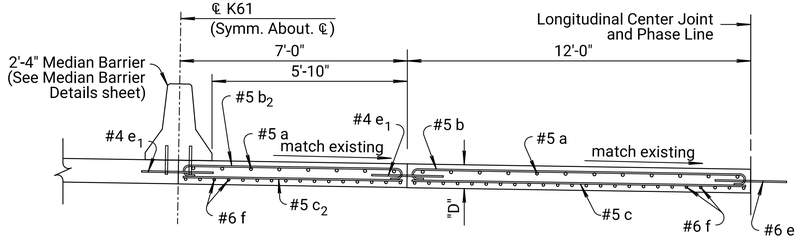


LONGITUDINAL SECTION



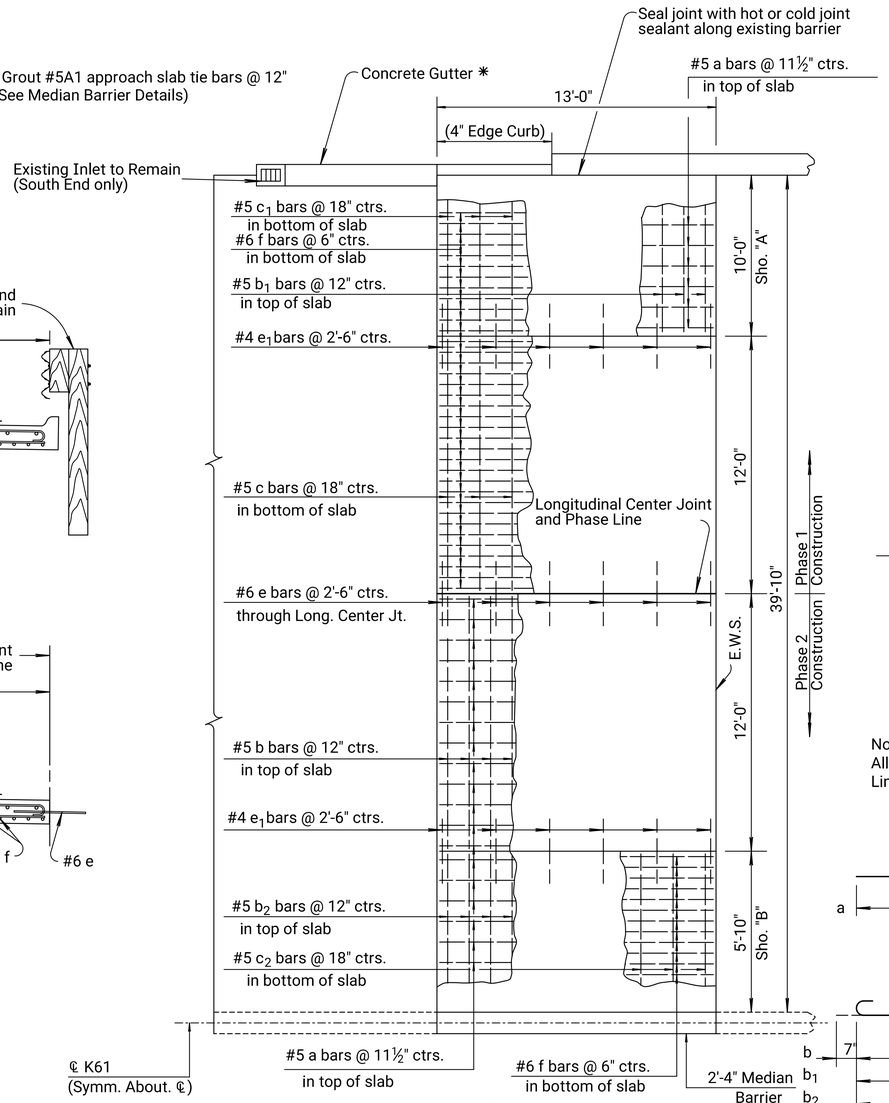
TYPICAL HALF SECTION
(No Scale)
(Phase 1 Construction)

"D" Thickness = (10" minimum).



TYPICAL HALF SECTION
(No Scale)
(Phase 2 Construction)

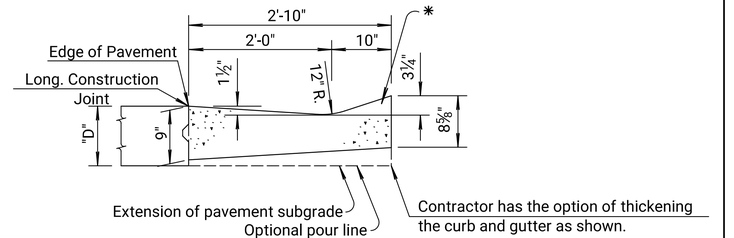
Note: Spacing of longitudinal reinforcing bars is normal to center line.
Spacing of transverse reinforcing bars is parallel to center line.



PLAN FOR NORMAL APPROACH
(No Scale)

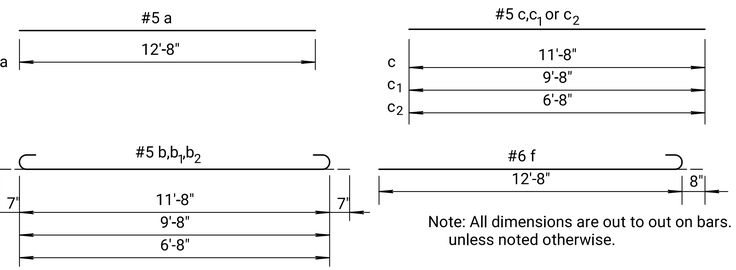
GENERAL NOTE
Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10" Unif.)(AE)(Br App) and includes all work and materials required to construct the approach slab as shown on this sheet.
All work and materials required for installation of joint material shall be subsidiary to this bid item.
At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.
All reinforcing steel shall be epoxy coated.
See Standard Drawing RD711 for details of joints and edge curb.
Clearance from the face of concrete for all reinforcing steel shall be 2 inches.
Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.

* Transition concrete gutter section to match 4" edge curb on approach slab



CONCRETE GUTTER

Note:
All work and materials required to construct the concrete gutters shall be paid for as Lin. Ft. of Gutters (AE). Concrete gutter contains 0.065 cu. yd. Concrete Grade 3.0 (AE) per lin. ft.



Note: All dimensions are out to out on bars. unless noted otherwise.

BENDING DIAGRAMS

BILL OF MATERIALS

BAR SCHEDULE

NORMAL APPROACH

Bar	a		b	b_1	b_2	c	c_1	c_2	e	e_1	f	
No.	90		52	26	26	36	18	18	12	30	164	
Size	#5		#5	#5	#5	#5	#5	#5	#6	#4	#6	
Length	12'-8"		12'-10"	10'-10"	7'-10"	11'-8"	9'-8"	6'-8"	3'-0"	3'-0"	13'-4"	

Reinforcing Steel (Grade 60) (Epoxy Coated) 6,540 lbs.

Concrete Pavement (10" Unif.)(AE) 118 Sq. Yds.

__° SKEW

a	a_1	b	b_1	b_2	c	c_1	c_2	e	e_1	f
#5	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
12'-8"	12'-8"							3'-0"	3'-0"	

Reinforcing Steel (Grade 60) (Epoxy Coated) lbs.

Concrete Pavement (__" Unif.)(AE) Sq. Yds.

__° SKEW

a	a_1	b	b_1	b_2	c	c_1	c_2	e	e_1	f
#5	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
12'-8"	12'-8"							3'-0"	3'-0"	

Reinforcing Steel (Grade 60) (Epoxy Coated) lbs.

Concrete Pavement (__" Unif.)(AE) Sq. Yds.

Note: Quantities listed for one approach slab only. Two required per bridge. Reinforcing steel and joint lengths shown for information only.

NO.	DATE	REVISIONS	BY	APP'D
10	9-9-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
9	5-14-09	Revised General Note	S.W.K.	J.O.B.
8	10-30-08	Revised 4" Edge Curb	S.W.K.	J.O.B.
7	1 1-07-07	Revised pavement slope to percent	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 61-78-55.11 (076) Co. Ref. Pt. 36.98
APPROACH SLABS BRIDGE (076)
CONCRETE BRIDGE APPROACH PAVEMENT
ADJ. TO ASPHALT SURFACE (U-TYPE ABUTMENT)
~~RD715A~~

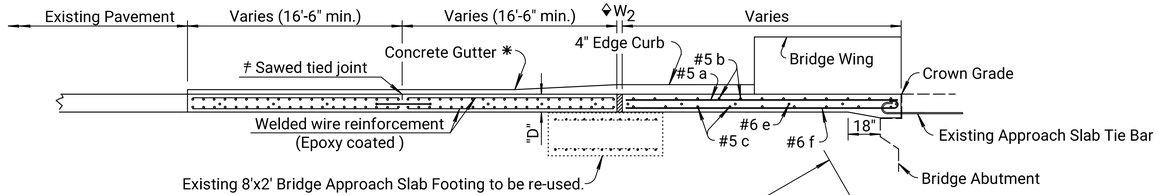
FHWA APPROVAL 6-9-09		APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Sheet No. 11

Note to Designer: The designer shall be responsible for designating pavement thickness and computing reinforcing steel and concrete quantities and dimensions necessary to complete this sheet.

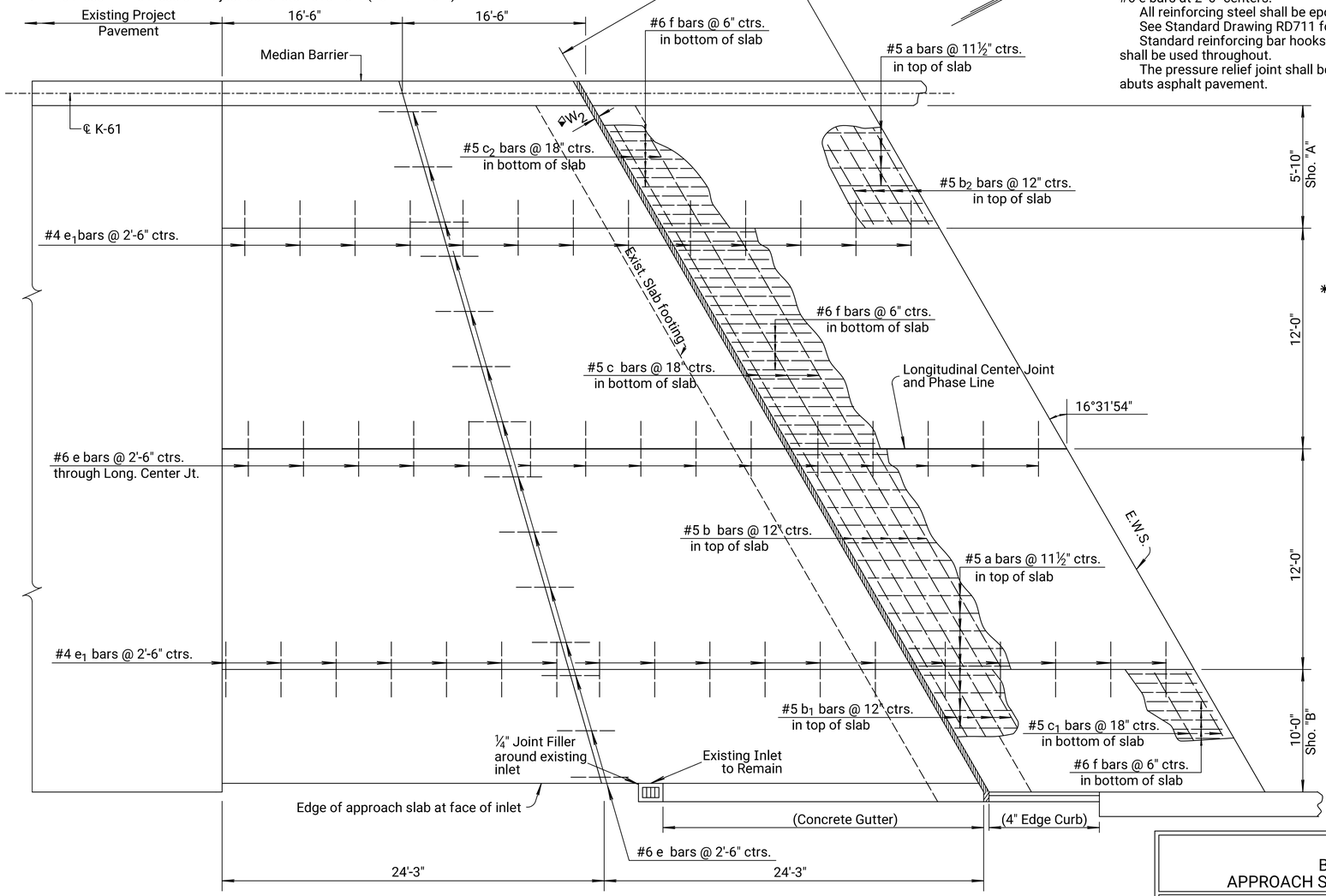
Plotted :07-JAN-2022 14:04
Drawn By : mbender
File : 1449909_11_078-076_Approach_Slab_Details.dgn

Note to Designer: The designer shall be responsible for designating pavement thickness and computing reinforcing steel and concrete quantities and dimensions necessarty to complete this sheet.



LONGITUDINAL SECTION

"D" Thickness = Thickness of Project Concrete Pavement (10" minimum).



PLAN VIEW
(No Scale)

Note: Spacing of longitudinal reinforcing bars is normal to center line.
Spacing of transverse reinforcing bars is parallel to center line.

SOUTH END OF BRIDGE - NB LANES

Note: Reinforcing steel and joint lengths shown for information only.
For "Bar Bending Diagrams", see Sheet No. 14.

⊗ Measured along the Expansion/Pressure Relief Joint.

✳ For details of 4" Edge Curb, See Std. Drawing RD711.

♦ W_1 and W_2 for Expansion/Pressure Relief Joint width and details. See Standard Drawing RD712.

≠ Contractor has the option of substituting a Tied Keyed Construction Joint.

GENERAL NOTE

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.

All work and materials required for installation of expansion joints and pressure relief joints shall be subsidiary to this bid item.

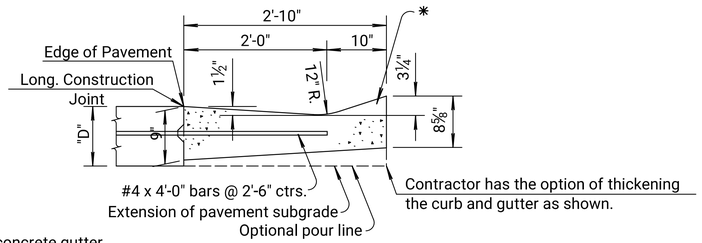
At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

All reinforcing steel shall be epoxy coated.

See Standard Drawing RD711 for details of joints, welded wire reinforcement, and edge curb.

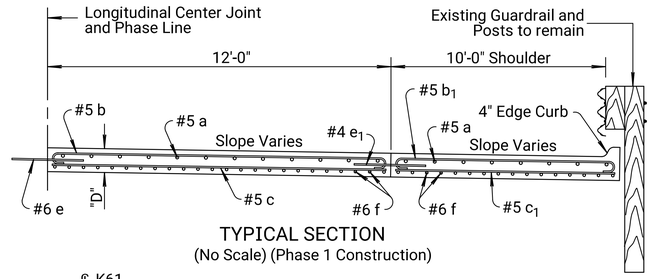
Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.

The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.

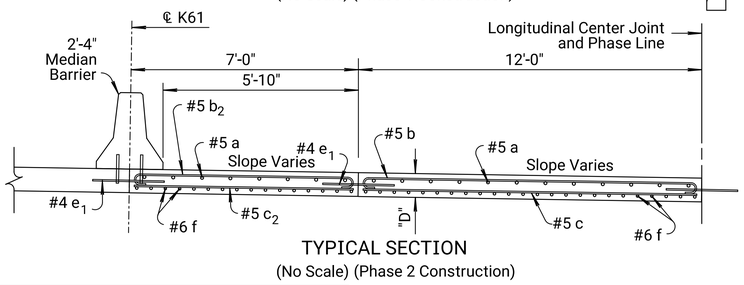


✳ Transition concrete gutter section to match 4" edge curb on approach slab

CONCRETE GUTTER



TYPICAL SECTION
(No Scale) (Phase 1 Construction)



TYPICAL SECTION
(No Scale) (Phase 2 Construction)

16°-31'-54" Skew
BILL OF MATERIALS
APPROACH SLAB AT SOUTH END OF BRIDGE

Bar Schedule

Bar	a	b	b_1	b_2	b_3	c	c_1	c_2	c_3	e	e_1	f
No.	105	70	14	28	14	50	10	20	10	97	102	182
Size	#5	#5	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	13'-2"	13'-4"	11'-3"	8'-1"	7'-1"	12'-2"	10'-1"	6'-11"	5'-11"	3'-0"	3'-0"	13'-10"

Reinforcing Steel (Grade 60) (Epoxy Coated)	8,290 lbs.
Concrete Pavement (10" Unif.)(AE)	469 Sq. Yds.
Expansion Joint Membrane Sealant ⊗	95 Lin. Ft.

Note:
All work and materials required to construct the concrete gutters shall be paid for as Lin. Ft. of Gutters (AE). Concrete gutter contains 0.065 cu. yd. Concrete Grade 3.0 (AE) per lin. ft.

Gutter adjoining concrete bridge approach slab may, at the contractor's option, be constructed either monolithically or separately, using either the mix used in the concrete bridge approach slab or Concrete Grade 3.0 (AE). The gutter shall have the same section shown on the plans. If constructed monolithically, the longitudinal joint and tie bars shall be omitted from the gutter.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	12	52

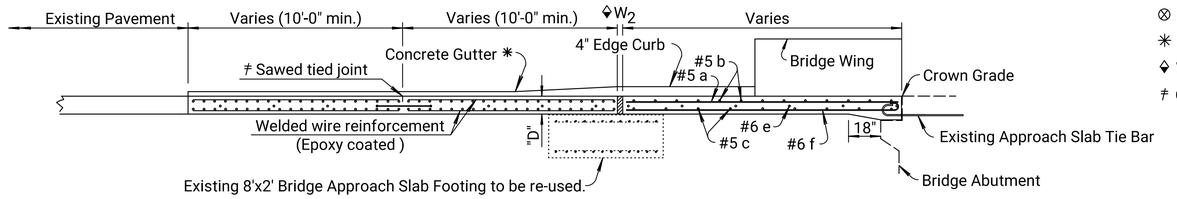
NO.	DATE	REVISIONS	BY	APP'D
12	4-04-13	Rev. Exp./Pr. Relief Joint Dim.	S.W.K.	J.O.B.
11	9-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
10	5-14-09	Revised pressure relief jt. material	S.W.K.	J.O.B.
9	10-30-08	Added guardrail post detail at curb	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 61-78-55.61 (079) Co. Ref. Pt. 37.48
APPROACH SLABS BRIDGE (079)
CONCRETE BRIDGE APPROACH PAVEMENT
SKEWED APPROACH (SOUTH END 1 OF 2)
~~RD714A~~ 16°31'54" Skew

FHWA APPROVAL	5-21-2013	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Drawn By : mbender Plotted :07-JAN-2022 14:04
File : 1449909_12_078-079_Approach_Slab_Details-33 SE.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	13	52



LONGITUDINAL SECTION

"D" Thickness = Thickness of Project Concrete Pavement (10" minimum).

⊗ Measured along the Expansion/Pressure Relief Joint.

✳ For details of 4" Edge Curb, See Std. Drawing RD711.

W1 and W2 for Expansion/Pressure Relief Joint width and details. See Standard Drawing RD712.

≠ Contractor has the option of substituting a Tied Keyed Construction Joint.

GENERAL NOTE

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.

All work and materials required for installation of expansion joints and pressure relief joints shall be subsidiary to this bid item.

At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

All reinforcing steel shall be epoxy coated.

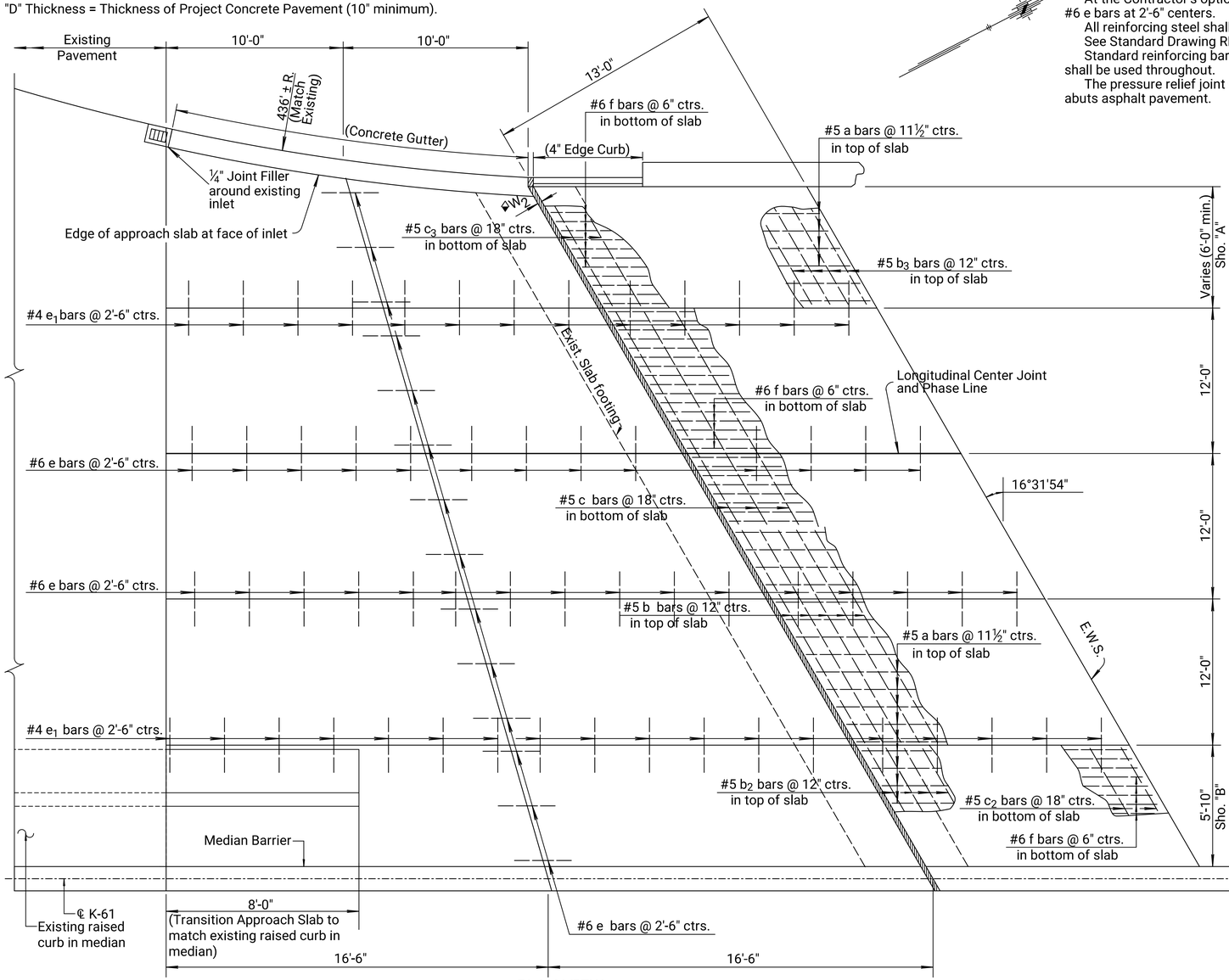
See Standard Drawing RD711 for details of joints, welded wire reinforcement, and edge curb.

Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.

The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.

Note:
All work and materials required to construct the concrete gutters shall be paid for as Lin. Ft. of Gutters (AE). Concrete gutter contains 0.065 cu. yd. Concrete Grade 3.0 (AE) per lin. ft.

Gutter adjoining concrete bridge approach slab may, at the contractor's option, be constructed either monolithically or separately, using either the mix used in the concrete bridge approach slab or Concrete Grade 3.0 (AE). The gutter shall have the same section shown on the plans. If constructed monolithically, the longitudinal joint and tie bars shall be omitted from the gutter.

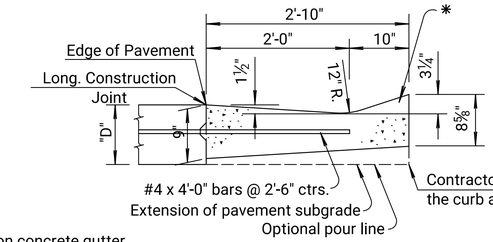


PLAN VIEW

(No Scale)

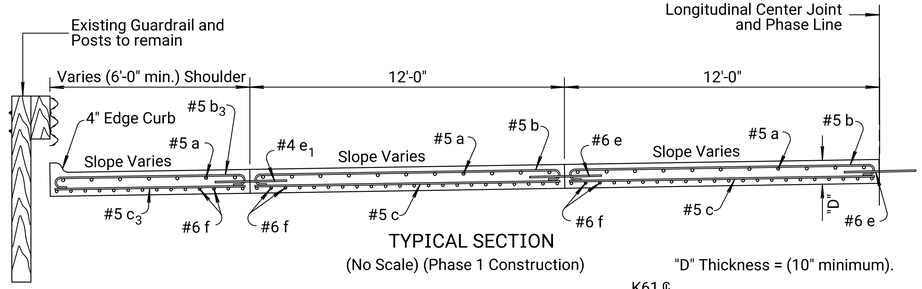
SOUTH END OF BRIDGE - SB LANES

Note: Spacing of longitudinal reinforcing bars is normal to center line.
Spacing of transverse reinforcing bars is parallel to center line.



✳ Transition concrete gutter section to match 4" edge curb on approach slab

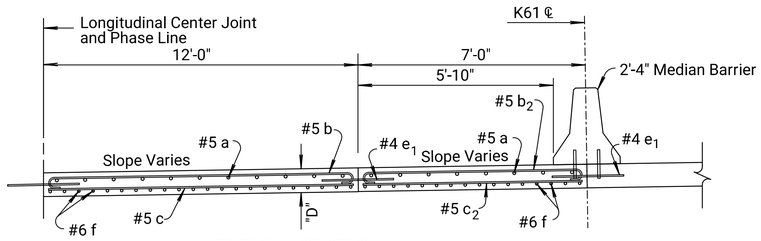
CONCRETE GUTTER



TYPICAL SECTION

(No Scale) (Phase 1 Construction)

"D" Thickness = (10" minimum).



TYPICAL SECTION

(No Scale)

(Phase 2 Construction)

NO.	DATE	REVISIONS	BY	APP'D
12	4-04-13	Rev. Exp./Pr. Relief Joint Dim.	S.W.K.	J.O.B.
11	9-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
10	5-14-09	Revised pressure relief jt. material	S.W.K.	J.O.B.
9	10-30-08	Added guardrail post detail at curb	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.61 (079) Co. Ref. Pt. 37.48

APPROACH SLABS BRIDGE (079)

CONCRETE BRIDGE APPROACH PAVEMENT

SKEWED APPROACH (SOUTH END 2 OF 2)

~~RD714A~~ 16°31'54" Skew

FHWA APPROVAL	5-21-2013	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Note to Designer: The designer shall be responsible for designating pavement thickness and computing reinforcing steel and concrete quantities and dimensions necessarty to complete this sheet.

Plotted 07-JAN-2022 14:04
Drawn By : mbender
File : 1449909_13_078-079_Approach_Slab_Details-33' SW.dgn

Note to Designer: The designer shall be responsible for designating pavement thickness and computing reinforcing steel and concrete quantities and dimensions necessarty to complete this sheet.

Drawn By : mbender
File : 1449909_14_078-079_Approach_Slab_Details-33° NE.dgn

Plotted 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	14	52

⊗ Measured along the Expansion/Pressure Relief Joint.

✳ For details of 4" Edge Curb, See Std. Drawing RD711.

♦ W_1 and W_2 for Expansion/Pressure Relief Joint width and details. See Standard Drawing RD712.

≠ Contractor has the option of substituting a Tied Keyed Construction Joint.

GENERAL NOTE

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.

All work and materials required for installation of expansion joints and pressure relief joints shall be subsidiary to this bid item.

At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

All reinforcing steel shall be epoxy coated.

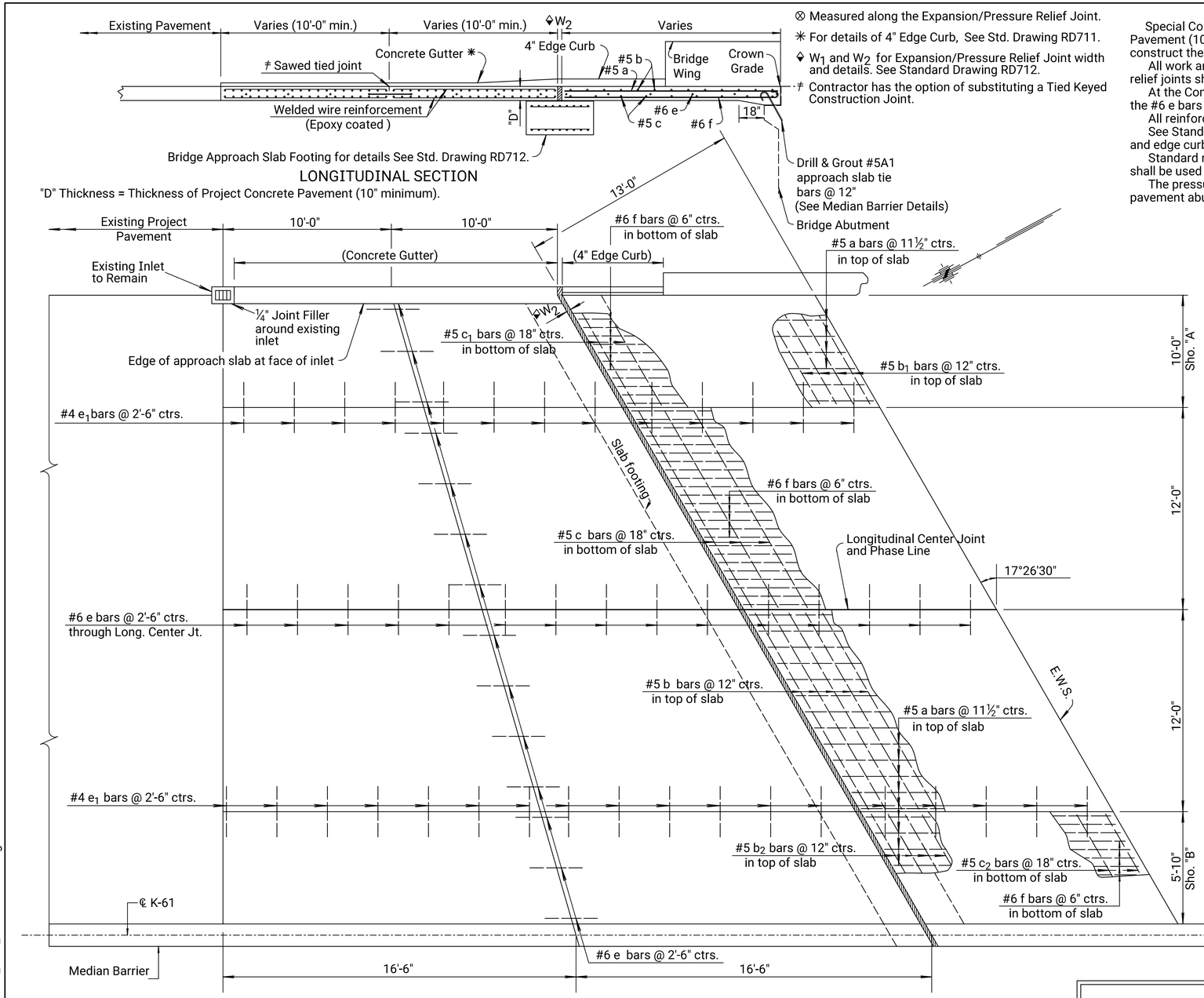
See Standard Drawing RD711 for details of joints, welded wire reinforcement, and edge curb.

Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.

The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.

Note:
All work and materials required to construct the concrete gutters shall be paid for as Lin. Ft. of Gutters (AE). Concrete gutter contains 0.065 cu. yd. Concrete Grade 3.0 (AE) per lin. ft.

Gutter adjoining concrete bridge approach slab may, at the contractor's option, be constructed either monolithically or separately, using either the mix used in the concrete bridge approach slab or Concrete Grade 3.0 (AE). The gutter shall have the same section shown on the plans. If constructed monolithically, the longitudinal joint and tie bars shall be omitted from the gutter.

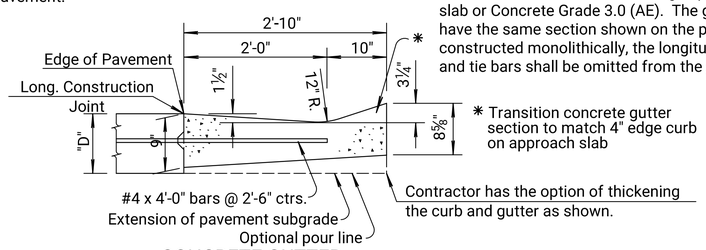


PLAN VIEW
(No Scale)

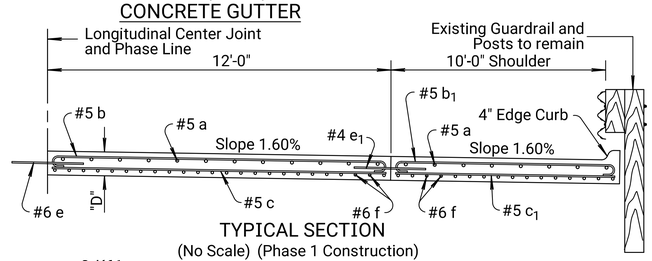
Note: Spacing of longitudinal reinforcing bars is normal to center line.
Spacing of transverse reinforcing bars is parallel to center line.

NORTH END OF BRIDGE - NB LANES

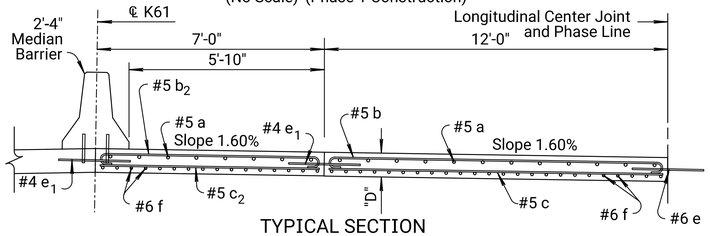
Note: Reinforcing steel and joint lengths shown for information only.



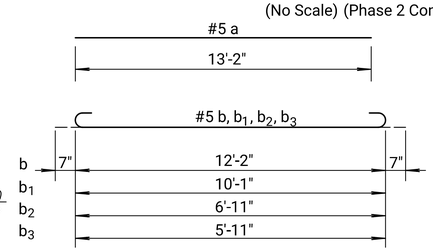
CONCRETE GUTTER

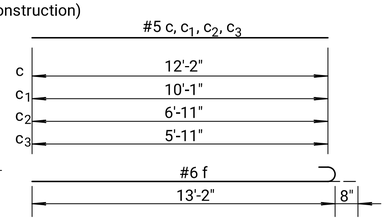


TYPICAL SECTION
(No Scale) (Phase 1 Construction)



TYPICAL SECTION
(No Scale) (Phase 2 Construction)





Note: All dimensions are out to out on bars unless noted otherwise.

BENDING DIAGRAMS

17°-26'-30" Skew
BILL OF MATERIALS
APPROACH SLAB AT SOUTH END OF BRIDGE

Bar Schedule

Bar	a	b	b_1	b_2	b_3	c	c_1	c_2	c_3	e	e_1	f
No.	105	70	14	28	14	50	10	20	10	97	102	182
Size	#5	#5	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	13'-2"	13'-4"	11'-3"	8'-1"	7'-1"	12'-2"	10'-1"	6'-11"	5'-11"	3'-0"	3'-0"	13'-10"

Reinforcing Steel (Grade 60) (Epoxy Coated)	8,290 lbs.
Concrete Pavement (10" Unif.)(AE)	469 Sq. Yds.
Expansion Joint Membrane Sealant ⊗	95 Lin. Ft.

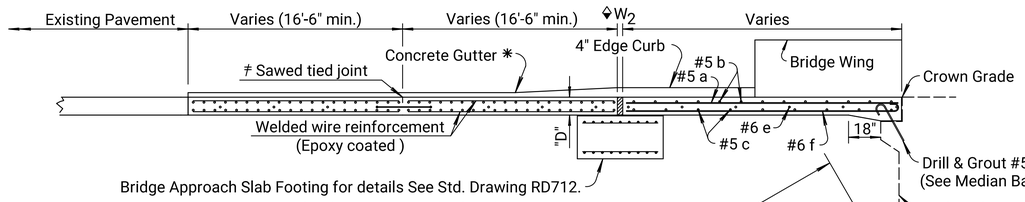
NO.	DATE	REVISIONS	BY	APP'D
12	4-04-13	Rev. Exp./Pr. Relief Joint Dim.	S.W.K.	J.O.B.
11	9-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
10	5-14-09	Revised pressure relief jt. material	S.W.K.	J.O.B.
9	10-30-08	Added guardrail post detail at curb	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION
Br. No. 61-78-55.61 (079) Co. Ref. Pt. 37.48
APPROACH SLABS BRIDGE (079)
CONCRETE BRIDGE APPROACH PAVEMENT
SKEWED APPROACH (NORTH END 1 OF 2)
~~RD714A~~ 17°26'30" Skew

FHWA APPROVAL	5-21-2013	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	15	52

Note to Designer: The designer shall be responsible for designating pavement thickness and computing reinforcing steel and concrete quantities and dimensions necessarty to complete this sheet.



LONGITUDINAL SECTION

"D" Thickness = Thickness of Project Concrete Pavement (10" minimum).

⊗ Measured along the Expansion/Pressure Relief Joint.

✳ For details of 4" Edge Curb, See Std. Drawing RD711.

W1 and W2 for Expansion/Pressure Relief Joint width and details. See Standard Drawing RD712.

≠ Contractor has the option of substituting a Tied Keyed Construction Joint.

GENERAL NOTE

Special Concrete Bridge Approach shall be paid for as Sq. Yds. of Concrete Pavement (10" Unif.)(AE)(Br. App.) and includes all work and materials required to construct the approach slab as shown on this sheet.

All work and materials required for installation of expansion joints and pressure relief joints shall be subsidiary to this bid item.

At the Contractor's option #4x3'-0" tie bars @ 15" centers may be substituted for the #6 e bars at 2'-6" centers.

All reinforcing steel shall be epoxy coated.

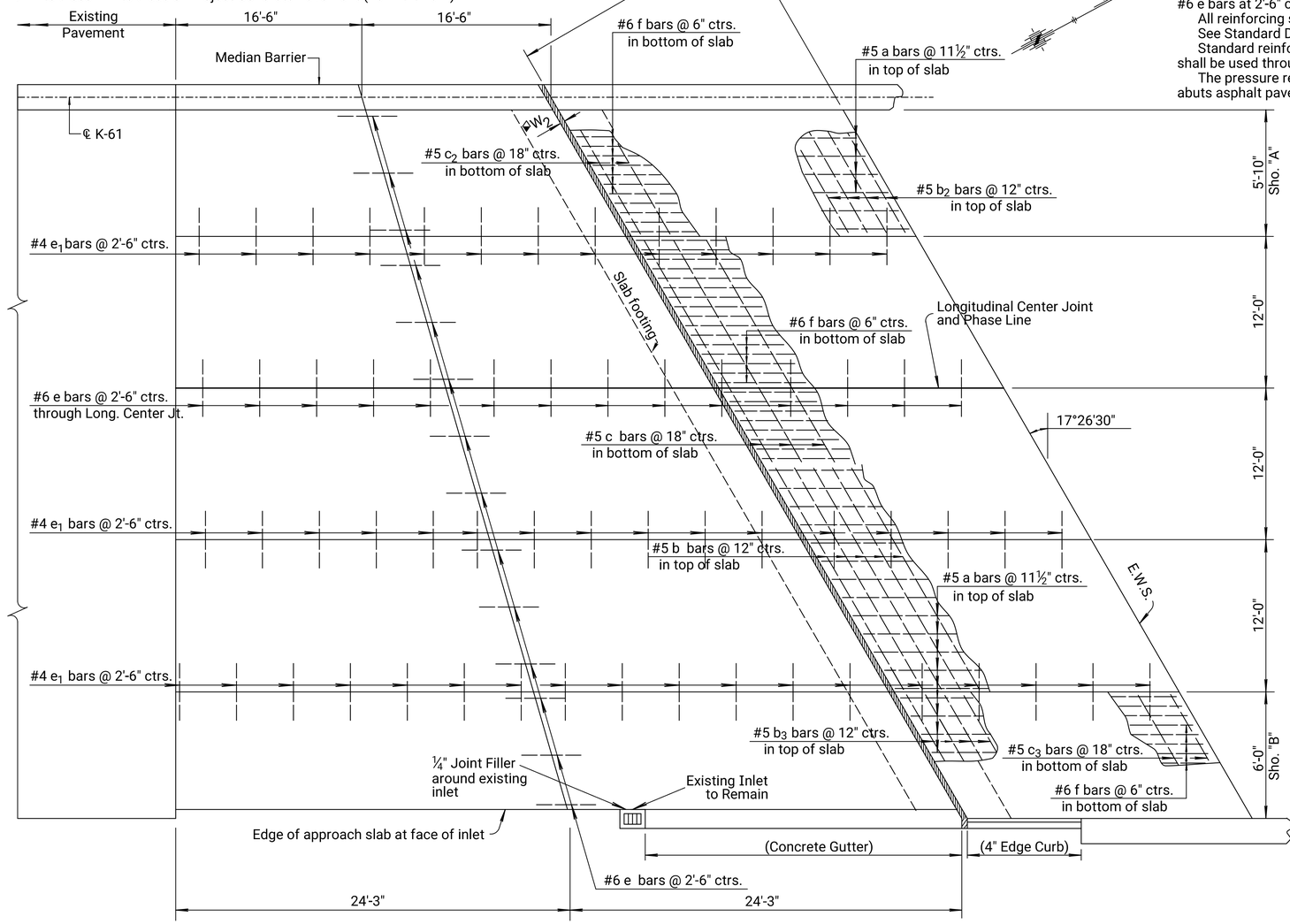
See Standard Drawing RD711 for details of joints, welded wire reinforcement, and edge curb.

Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.

The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.

Note:
All work and materials required to construct the concrete gutters shall be paid for as Lin. Ft. of Gutters (AE). Concrete gutter contains 0.065 cu. yd. Concrete Grade 3.0 (AE) per lin. ft.

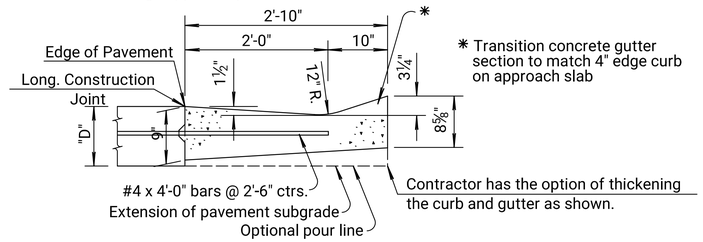
Gutter adjoining concrete bridge approach slab may, at the contractor's option, be constructed either monolithically or separately, using either the mix used in the concrete bridge approach slab or Concrete Grade 3.0 (AE). The gutter shall have the same section shown on the plans. If constructed monolithically, the longitudinal joint and tie bars shall be omitted from the gutter.



PLAN VIEW
(No Scale)

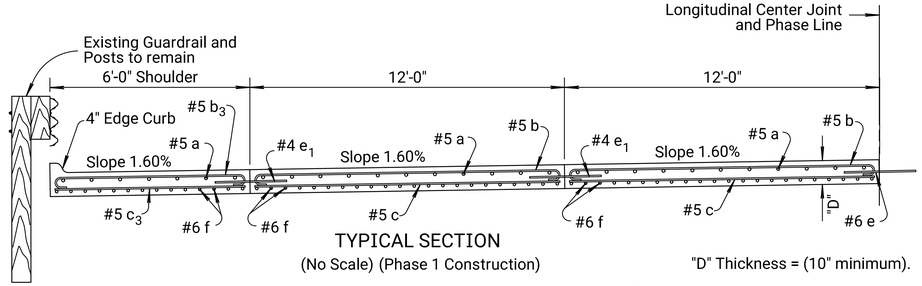
Note: Spacing of longitudinal reinforcing bars is normal to center line.
Spacing of transverse reinforcing bars is parallel to center line.

NORTH END OF BRIDGE - SB LANES



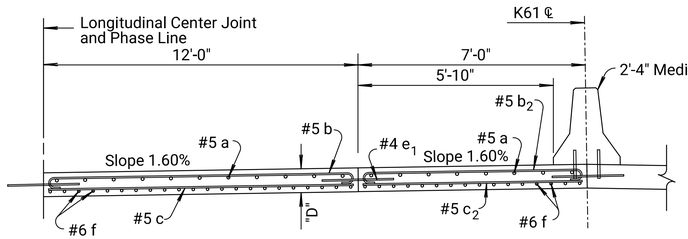
✳ Transition concrete gutter section to match 4" edge curb on approach slab

CONCRETE GUTTER



TYPICAL SECTION
(No Scale) (Phase 1 Construction)

"D" Thickness = (10" minimum).



TYPICAL SECTION
(No Scale)
(Phase 2 Construction)

NO.	DATE	REVISIONS	BY	APP'D
12	4-04-13	Rev. Exp./Pr. Relief Joint Dim.	S.W.K.	J.O.B.
11	9-09-09	Revised Reinforcing Steel listing	S.W.K.	J.O.B.
10	5-14-09	Revised pressure relief jt. material	S.W.K.	J.O.B.
9	10-30-08	Added guardrail post detail at curb	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.61 (079) Co. Ref. Pt. 37.48

APPROACH SLABS BRIDGE (079)

CONCRETE BRIDGE APPROACH PAVEMENT

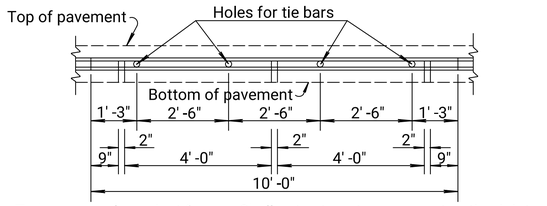
SKEWED APPROACH (NORTH END 2 OF 2)

~~RD714A~~ 17°26'30" Skew

FHWA APPROVAL	5-21-2013	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

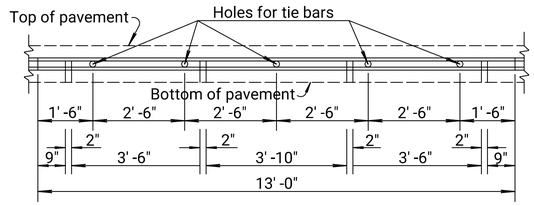
Drawn By : mbender Plotted :07-JAN-2022 14:04
File : 1449909_15_078-079_Approach_Slab_Details-33' NW.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	16	52



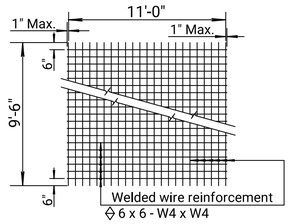
To be used only against forms. Shall not extend through contraction joints.

METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT (10'-0")



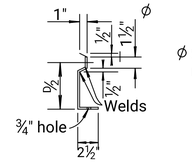
To be used only against forms. Shall not extend through contraction joints.

METAL STRIP FOR
LONGITUDINAL CONSTRUCTION JOINT (13'-0")



TYPICAL SHEET OF WELDED WIRE REINFORCEMENT
FOR SPECIAL BRIDGE APPROACH PAVEMENT

◊ Note: Epoxy coated #3 bars longitudinally @ 12" ctrs. & #3 bars transversely @ 18" ctrs. may be substituted for each layer of epoxy coated welded wire reinforcement.



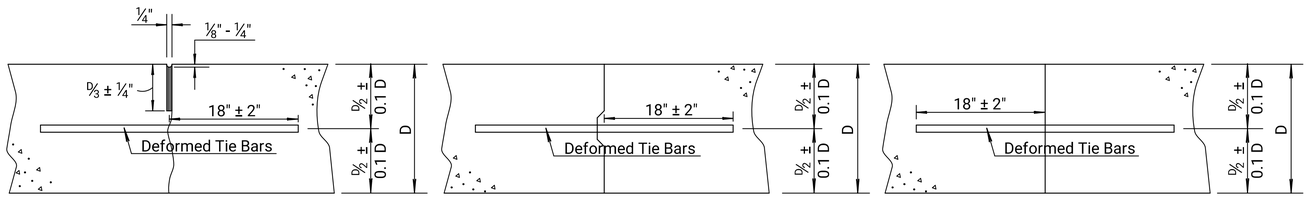
SECTION OF RECESSED
FORM LEG

ϕ Snap-in leg or other approved designs may be used in lieu of welded leg.

DETAIL OF LAP FOR WELDED WIRE REINFORCEMENT

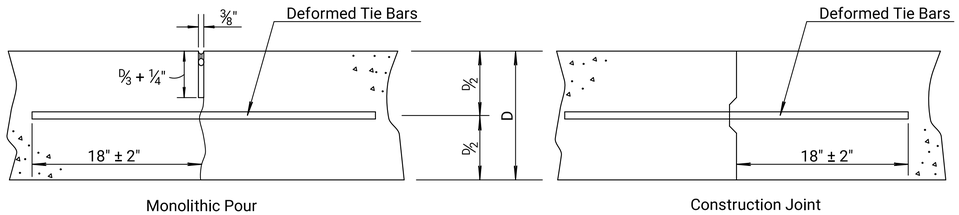
The lap shall extend beyond the first transverse or bag wire of each sheet.

The sheet shall be wired securely at the edges and at intervals not to exceed 2'-6" for the full width of the sheet. Approximate weight of welded wire reinforcement = 58 lbs. per 100 sq. ft. Other methods for fastening the sheets of welded wire reinforcement at the laps may be used with the approval of the Engineer.



LONGITUDINAL JOINTS

Note: For longitudinal construction joints the contractor has the option of using either the keyed or butt type. Place deformed tie bars mid-depth of the shoulder.



TRANSVERSE JOINTS

Note: A construction joint is required when the concrete placement has been interrupted for a substantial length of time or at the end of a day's placement.

GENERAL NOTES

All work shall be done in conformity with the Standard Specifications applicable to the project.

The cost of all bars and joint material shown on this sheet is to be included in the bid price for Concrete Pavement.

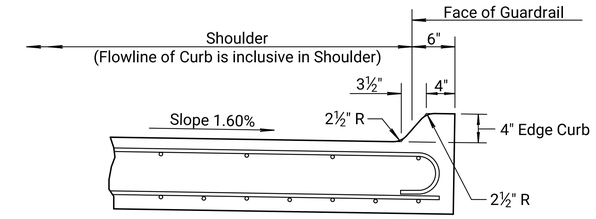
At each planned transverse joint location, a 4 to 6 inch wide strip of the pavement surface shall be protected from the texturing operation to provide a transverse textureless surface centered over the joint sawcut.

All sawed joints on this project shall be filled with sealant in accordance with Standard Specifications.

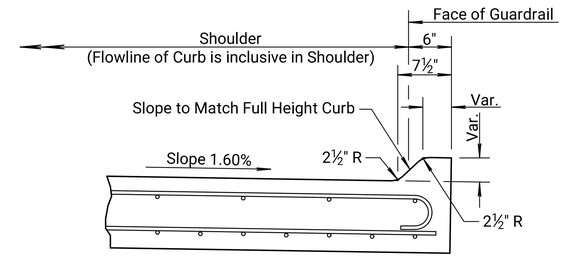
The 4 inch edge curb shall be constructed integral with the approach slab shoulder.

All materials and work required for this construction shall be Subsidiary to the concrete approach slab.

Tie bars shall be evenly spaced along the length of the slab and no tie bars shall be within 12" of contraction joint.

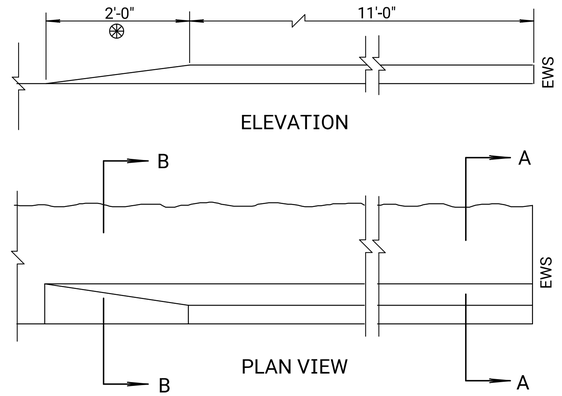


SECTION A-A



SECTION B-B

⊛ No 4" Curb transition when adjacent to Flume Inlet.



4" EDGE CURB DETAIL

NO.	DATE	REVISIONS	BY	APP'D
13	5-17-13	Revised Note, Longitudinal Joints	S.W.K.	J.O.B.
12	5-1 4-09	Pres. Relief Jt. to RD712/tie bar lab.	S.W.K.	J.O.B.
11	10-23-08	Revised Sec. A-A and Sec. B-B	S.W.K.	J.O.B.
10	10-3-07	Add. manufacturer jt. size recom'd.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

MISCELLANEOUS DETAILS FOR CONCRETE BRIDGE APPROACH PAVEMENT

RD711

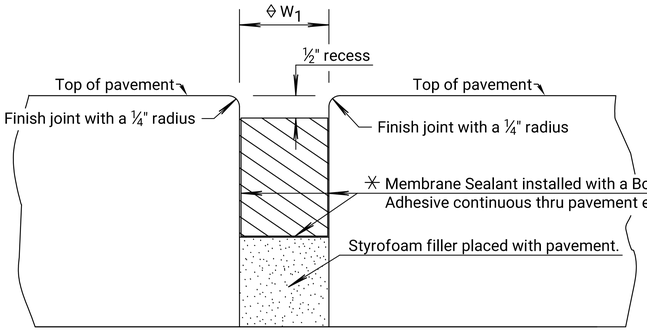
FHWA APPROVAL	10-23-13	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

Sheet No. 16

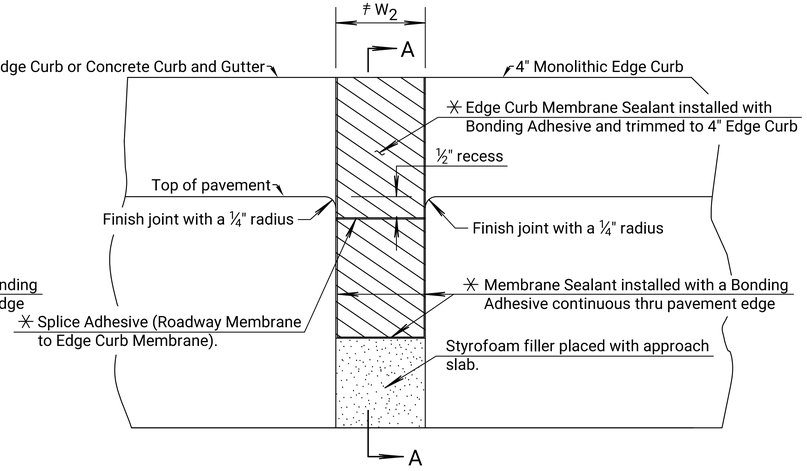
Drawn By: mbender Plotted 07-JAN-2022 14:04
File: 1449909_16_078-079_rd711.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	17	52

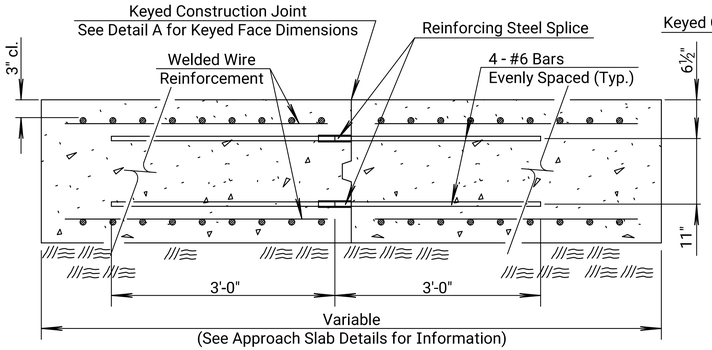
Note to Designer: For Membrane Sealant Expansion Joint on Non-skewed Bridges the maximum length of expansion is: 380' for Steel Bridges, 410' for Concrete Bridges.

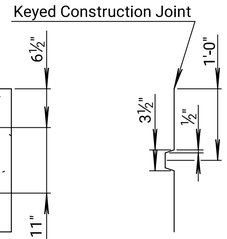


ELEVATION PRESSURE RELIEF JT.

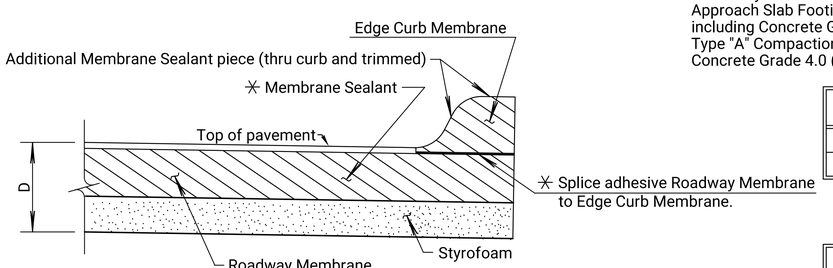


ELEVATION EXPANSION JT.





DETAIL A



SECTION A-A

(See Std. Drawing RD711 for details of 4" Edge Curb.)

GENERAL NOTES

EXPANSION/PRESSURE RELIEF JOINTS

See Concrete Bridge Approach Pavement standard drawings for location of expansion and pressure relief joints.

Form the joint opening prior to placement of the pavement approach. Remove the material used to form the joint after the pavement approach has been in place for a minimum of 6 days.

Clean and construct the joint only after the concrete in the approach slab has cured for a minimum of 7 days.

Thoroughly clean the joint by sandblasting and by high pressure air blast to remove all laitance and contaminants from the joint. When any joint is shaped by saw cutting in lieu of forming, blast the joint with water prior to sandblasting and air cleaning.

Accomplish sandblasting in two passes to clean each face of the joint (one pass for each face). Hold the nozzle 1 to 2 inches from the joint face at an angle to the joint face.

Remove any contaminants such as oil, curing compound, etc. by sandblasting to the satisfaction of the Engineer. Solvents, wire brushing, or grinding are not permitted.

Air blast the joint just prior to installing the Membrane Sealant. Equip the air compressor used to clean the joint with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. Spot check the joint to verify any residual dust or dirt has been removed. The Engineer is required to inspect the joint immediately prior to installing the joint material.

⚹ See KDOT Standard Specifications for Membrane Sealant, Bonding Adhesive and Splice Adhesive. The width of the membrane sealant is 4 inches (nominal).

Do not allow traffic on the joint for a minimum of 3 hours unless otherwise directed by the Engineer.

Use splice materials and methods recommended by the Manufacturer.

All work and materials for the preparation, construction, and installation of the joint will be subsidiary to the concrete approach pavement.

BRIDGE APPROACH SLAB FOOTING

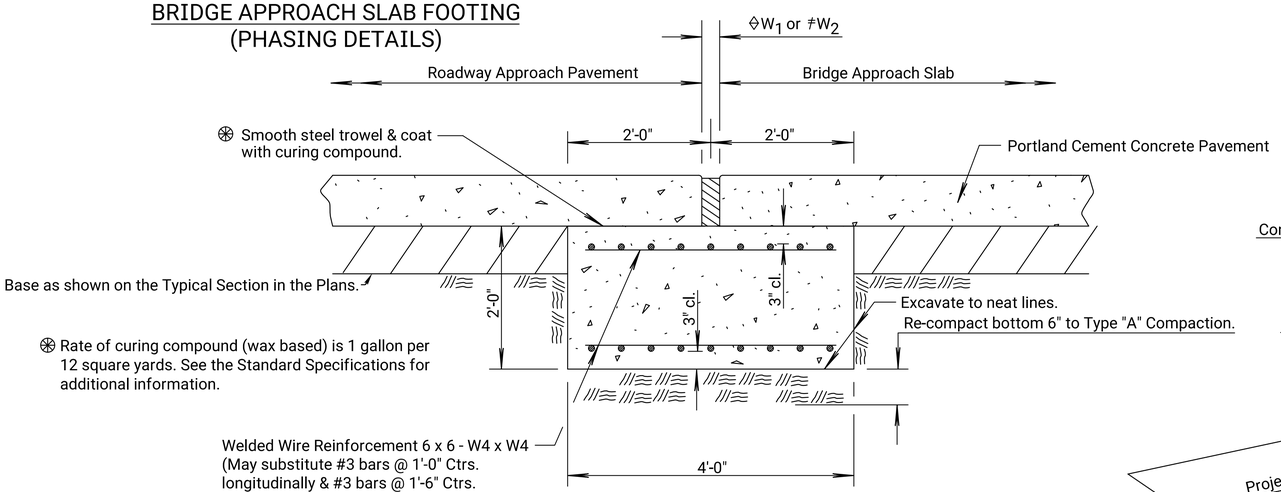
Pay for the Bridge Approach Slab Footing at the unit price bid per cubic yard for "Bridge Approach Slab Footing". This price will be full compensation for furnishing all materials and labor including Concrete Grade 4.0 (AE) Pavement, Reinforcing Steel (Gr. 60) (Epoxy Coated), excavation, Type "A" Compaction and materials used to prevent bonding of concrete. The Contractor may use Concrete Grade 4.0 (AE) or the mix used in the concrete pavement for the slab footing.

◊ PRESSURE RELIEF JOINT WIDTH DETAILS (W_1)							
℉ Temperature (F°)	40°	50°	60°	70°	80°	90°	100°
Formed Concrete Opening Size	4.0"	3¾"	3½"	3¼"	3.0"	2¾"	2½"

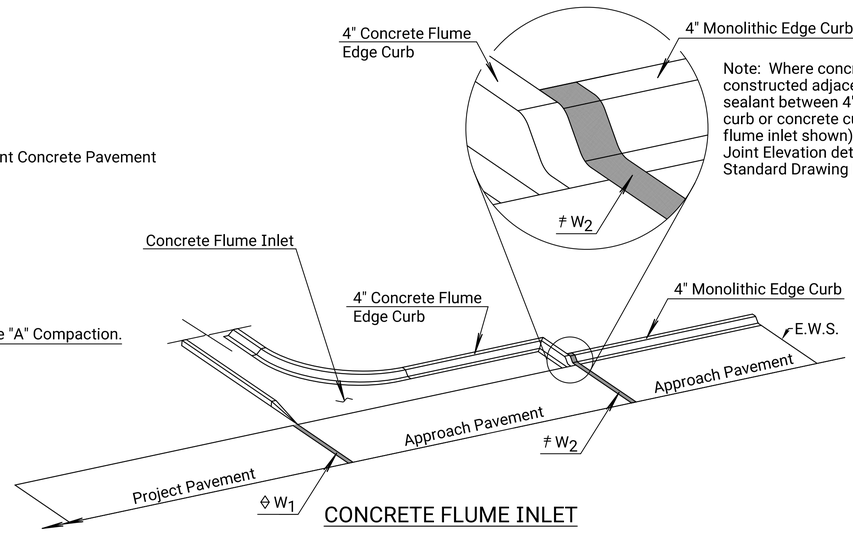
℉ Average Ambient Temperature over previous 24 hours.

≠ EXPANSION JOINT WIDTH DETAILS (W_2)
See bridge construction layout sheet for details.

BRIDGE APPROACH SLAB FOOTING (PHASING DETAILS)



BRIDGE APPROACH SLAB FOOTING



CONCRETE FLUME INLET

(Membrane Sealant Placed Through Edge Curb Detail)

Note: Where concrete flume inlets or concrete curb and gutter are constructed adjacent to bridge approach slab pavement place membrane sealant between 4" monolithic edge curb and 4" concrete flume inlet edge curb or concrete curb and gutter as shown on this sheet (concrete flume inlet shown). See approach slab Standard Drawings, Expansion Joint Elevation detail this sheet, Standard Drawing RD628, and Standard Drawing RD635 for additional details.

LEGEND

Membrane Sealant

NO.	DATE	REVISIONS	BY	APP'D
10	1-22-16	Add. Det., Keyed Joint & Flume Inlet	T.T.R.	S.W.K.
9	10-16-13	Revised General Note	S.W.K.	J.O.B.
8	4-4-13	Rev. Joint Width Det. Table	S.W.K.	J.O.B.
7	7-10-09	Adjusted Expansion joint table	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS EXPANSION/PRESSURE RELIEF JOINT/ BRIDGE APPROACH SLAB FOOTING

RD712

FHWA APPROVAL	2-1-16	APP'D.	Scott W. King
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

Drawn By : mbender
File : 1449909_17_078-079_rd712.dgn
Plotted 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	18	52

SCALE
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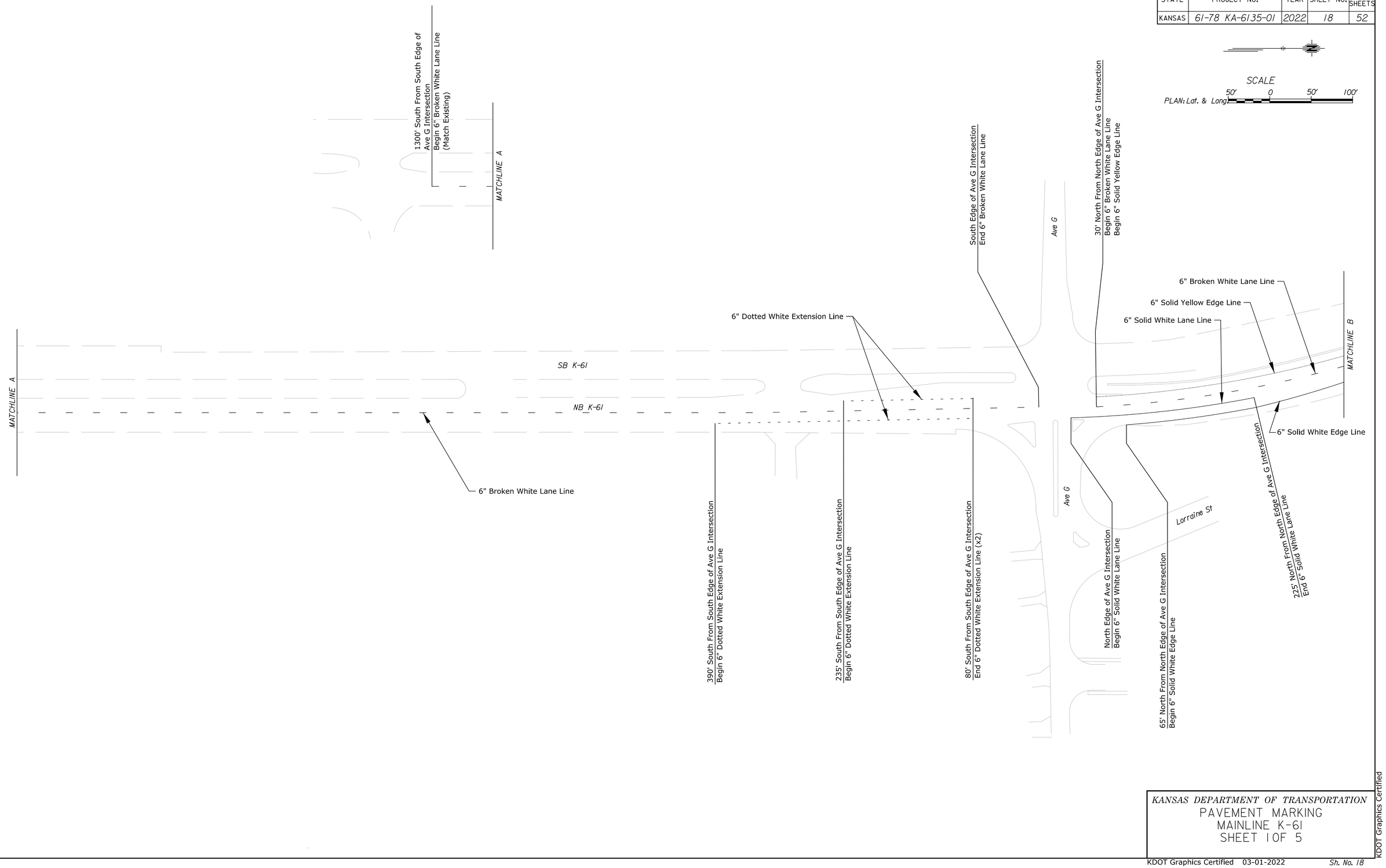
PLAN: Lat. & Long



KANSAS DEPARTMENT OF TRANSPORTATION
PAVEMENT MARKING
MAINLINE K-61
SHEET 1 OF 5

Drawn By: : cnovosel
File : ka613501mpl-01.dgn
Plotted : 01-MAR-2022 15:37

KDOT Graphics Certified 03-01-2022
Sh. No. 18
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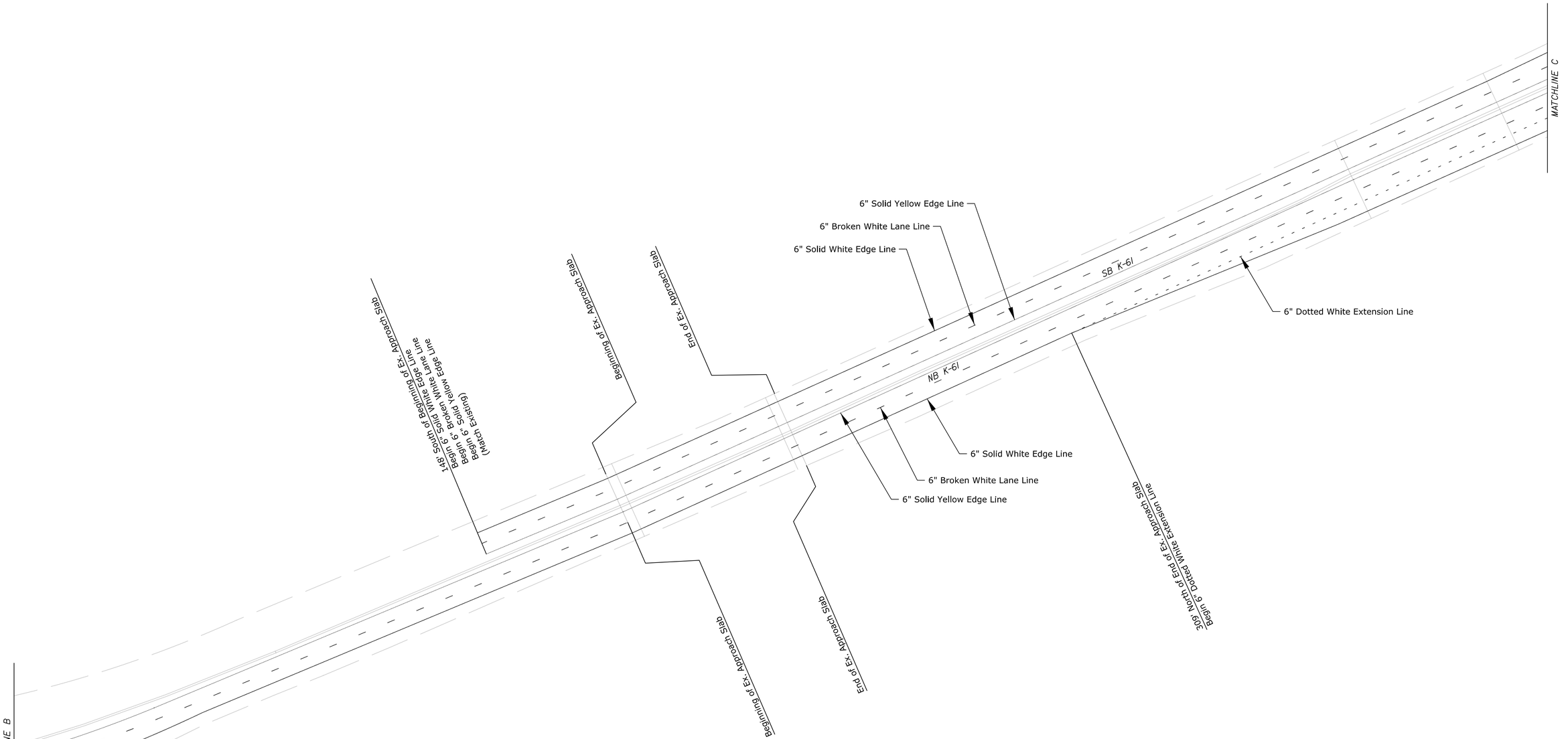
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	19	52



SCALE
PLAN: Lat. & Long 50' 0 50' 100'

KANSAS DEPARTMENT OF TRANSPORTATION
PAVEMENT MARKING
MAINLINE K-61
SHEET 2 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 19

KDOT Graphics Certified

Drawn By: : cnovosel
File : ka613501mpl-02.dgn
Plotted : 01-MAR-2022 15:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	20	52

SCALE
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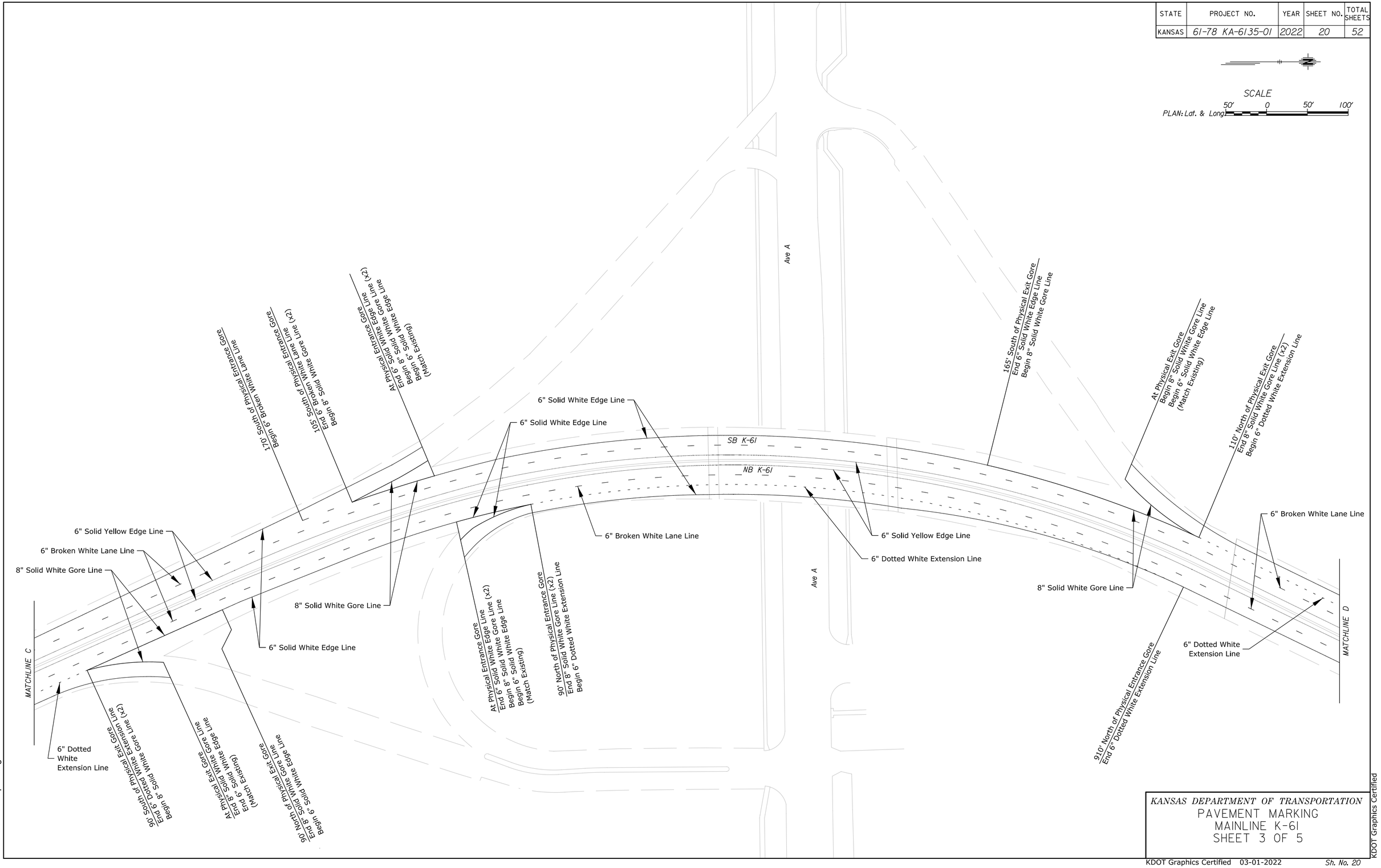
PLAN: Lat. & Long



KANSAS DEPARTMENT OF TRANSPORTATION
PAVEMENT MARKING
MAINLINE K-61
SHEET 3 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 20

KDOT Graphics Certified

Drawn By : cnovosel
File : ka613501mpl-03.dgn
Plotted :01-MAR-2022 15:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	21	52

SCALE
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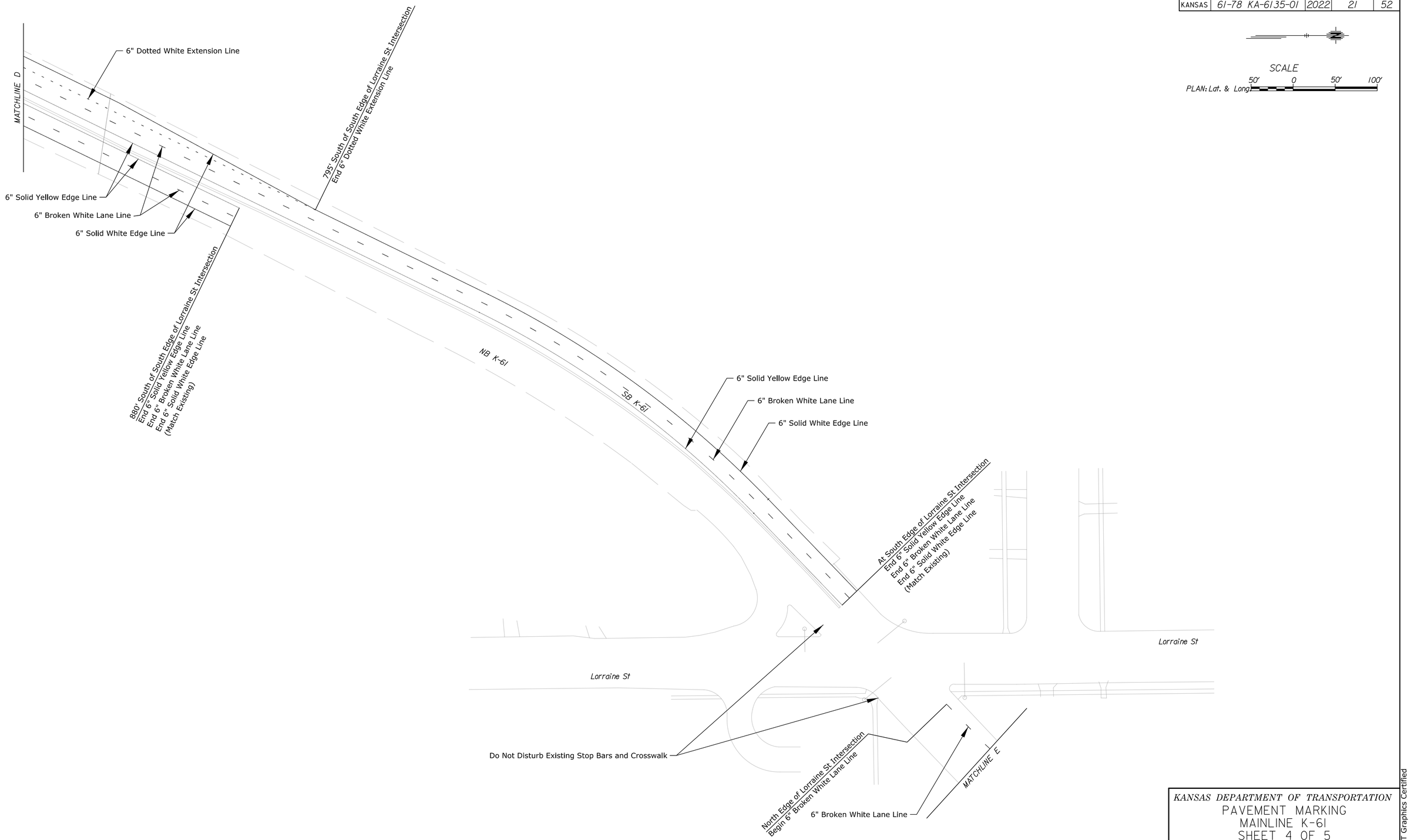
PLAN: Lat. & Long



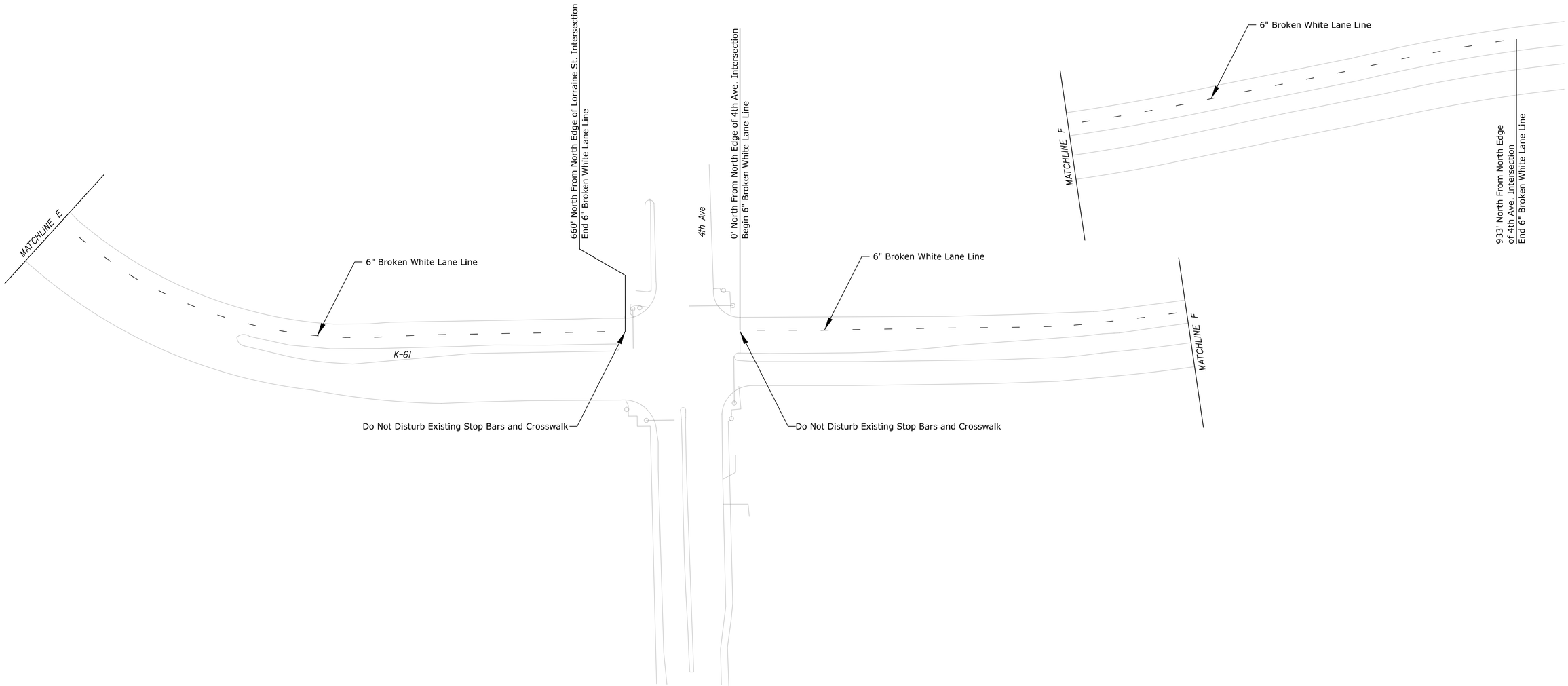
KANSAS DEPARTMENT OF TRANSPORTATION
PAVEMENT MARKING
MAINLINE K-61
SHEET 4 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 21

KDOT Graphics Certified

Drawn By: : cnovosel
File : ka613501mpl-04.dgn
Plotted : 01-MAR-2022 15:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	22	52



SCALE
50' 0 50' 100'
PLAN: Lat. & Long

KANSAS DEPARTMENT OF TRANSPORTATION
PAVEMENT MARKING
MAINLINE K-61
SHEET 5 OF 5

KDOT Graphics Certified 03-01-2022 *Sh. No. 22*

KDOT Graphics Certified

Drawn By : cnovosel
File : ka613501mpl-05.dgn
Plotted : 01-MAR-2022 15:37

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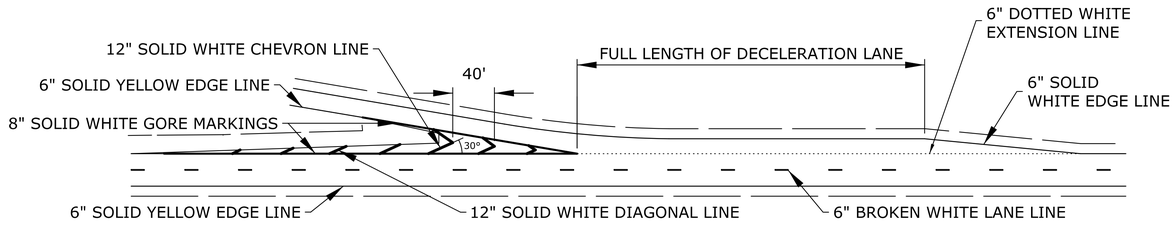
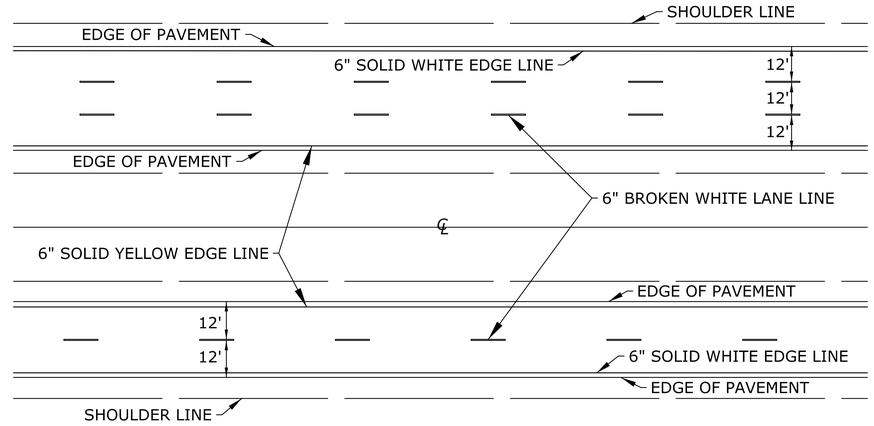
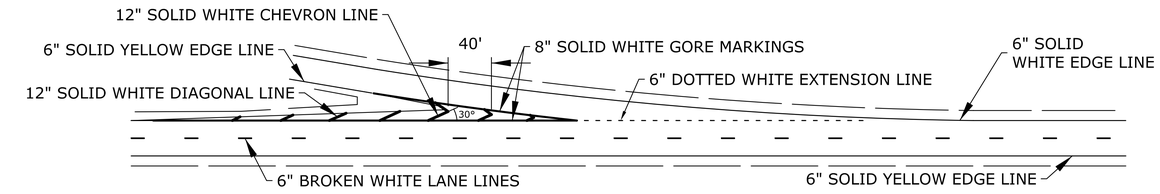
KANSAS	61-78 KA-6135-01	2022	23	52



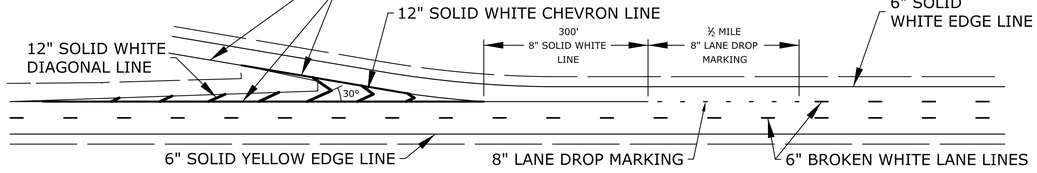
TYPICAL DECELERATION EXIT RAMP



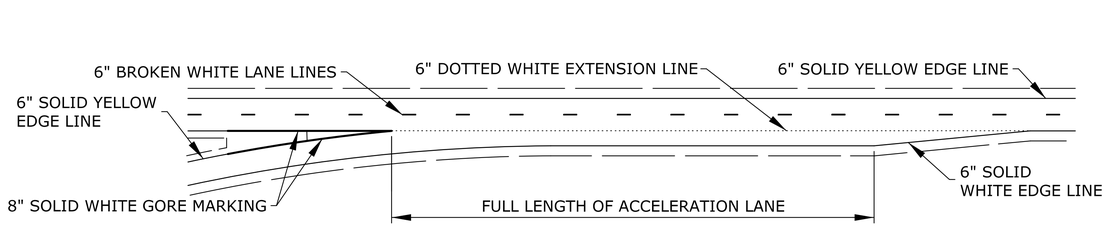
TYPICAL LANE LINE AND EDGE LINE MARKINGS FOR FOUR LANE AND SIX LANE DIVIDED HIGHWAYS



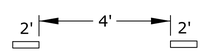
TYPICAL TAPERED EXIT RAMP



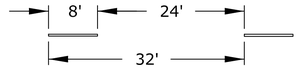
TYPICAL LANE DROP



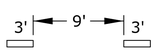
TYPICAL ACCELERATION RAMP



TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



TYPICAL SPACING FOR BROKEN LINES UNLESS OTHERWISE NOTED ON PLANS.



TYPICAL SPACING FOR LANE DROP. UNLESS OTHERWISE NOTED ON PLANS.

NOTE:
LONGITUDINAL PAVEMENT MARKING LINES SHALL BE OFFSET A MINIMUM OF 2" FROM LONGITUDINAL PAVEMENT JOINTS.

NOTE:
AT RAMP TERMINALS WITH CROSS-ROADS, WRAP 6" EDGE LINES AROUND RADII.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED. 6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

NO.	DATE	REVISIONS	BY	APP'D
2	5/25/12	Dotted Extension Lines and Lane Drop Lines	B.A.H.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL PAVEMENT MARKING DETAILS FOR MULTI-LANE DIVIDED ROADWAYS

TE307

FHWA APPROVAL				5/25/2012	APP'D	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.		QUANTITIES		TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.		QUAN. CK.		TRACE CK.

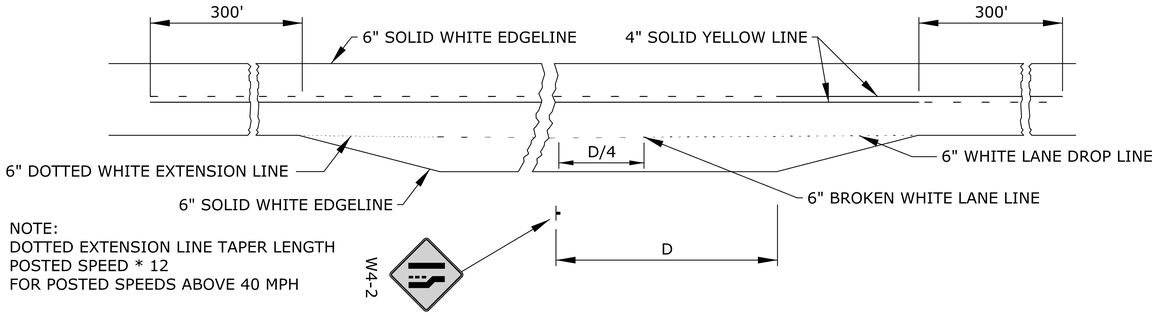
KDOT Graphics Certified 03-01-2022

KDOT Graphics Certified

Sh. No. 23

Plotted :01-MAR-2022 15:37
Drawn By : cnovosel
File : te307.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	24	52

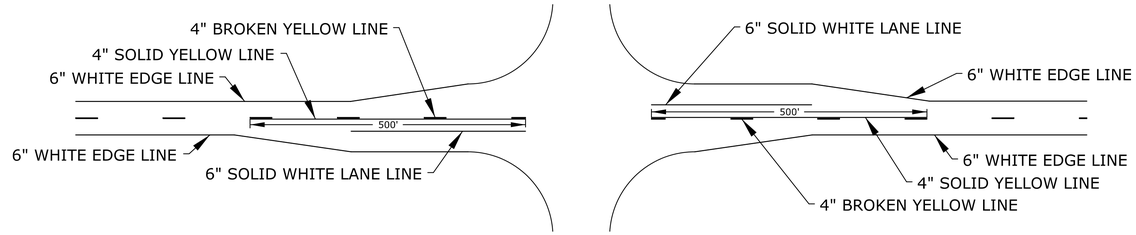


NOTE:
DOTTED EXTENSION LINE TAPER LENGTH
POSTED SPEED * 12
FOR POSTED SPEEDS ABOVE 40 MPH

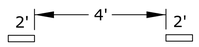
TYPICAL MARKING FOR AUXILIARY PASSING LANE

NOTE:
ALL PAVEMENT MARKINGS SHALL BE BROKEN AT CROSS ROADS.

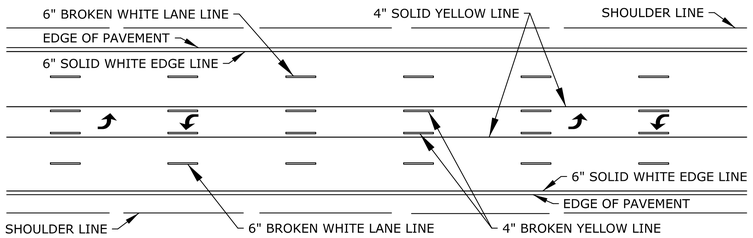
FOR HIGHWAY JUNCTIONS THE NO PASSING ZONE WILL EXTEND 1000' FROM INTERSECTION.



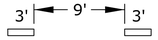
TYPICAL ROAD JUNCTION MARKINGS WITH BYPASS LANES



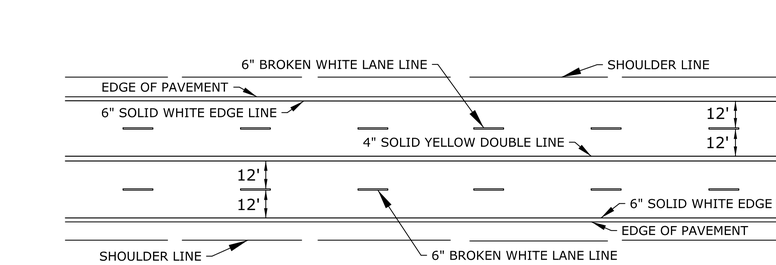
TYPICAL SPACING FOR DOTTED EXTENSION LINES, UNLESS OTHERWISE NOTED ON PLANS.



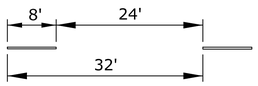
TWO-WAY LEFT TURN DETAIL FOR FIVE LANE ROADWAY



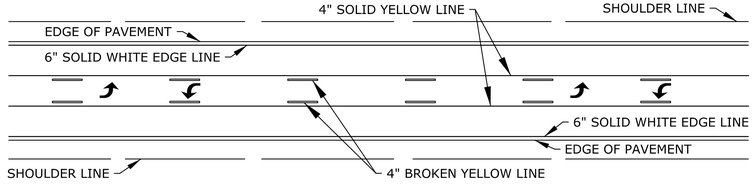
TYPICAL SPACING FOR LANE DROP. UNLESS OTHERWISE NOTED ON PLANS.



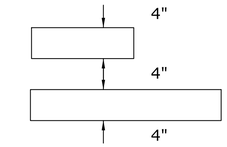
TYPICAL MARKINGS FOR FOUR LANE ROADWAY



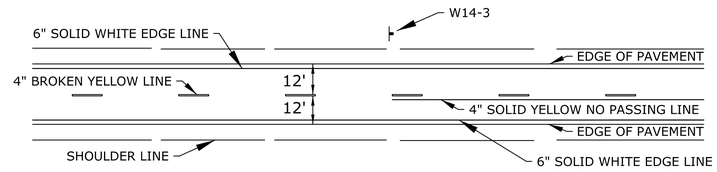
TYPICAL SPACING FOR BROKEN LINES UNLESS OTHERWISE NOTED ON PLANS



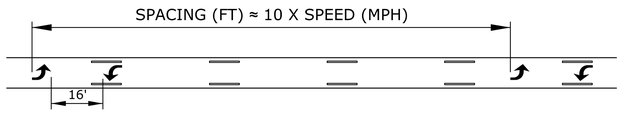
TWO-WAY LEFT TURN DETAIL FOR THREE LANE ROADWAY



TYPICAL SPACING FOR NO PASSING LINES UNLESS OTHERWISE NOTED ON PLANS



TYPICAL TWO LANE MARKINGS



TWO-WAY LEFT TURN ARROW SPACING DETAIL

NOTE:
IF ARROWS ARE USED SPACE THE ARROWS AS SHOWN IN THE SPACING DETAIL.

NOTE:
LONGITUDINAL PAVEMENT MARKING LINES SHALL BE OFFSET A MINIMUM OF 2" FROM LONGITUDINAL PAVEMENT JOINTS.

NOTE:
ON NON I, US, AND K ROUTES, 4" EDGE LINES MAY BE INSTALLED.
6" EDGE LINES ARE NOT REQUIRED ON NON I, US, AND K ROUTES.

NO.	DATE	REVISIONS	BY	APP'D
3	5/25/12	Added Dotted Extension and Lane Drop Lines	B.A.H.	B.D.G.
2	9/20/05	Removed Aux. Passing Lane Dotted Ext. Line	J.F.F.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

TYPICAL PAVEMENT MARKING DETAILS FOR UNDIVIDED ROADWAYS

TE308

FHWA APPROVAL		5/25/2012	APP'D	Brian D. Gower	
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

KDOT Graphics Certified 03-01-2022

Sh. No. 24

KDOT Graphics Certified

Plotted : 01-MAR-2022 15:37

Drawn By : cnovosel
File : te308.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	25	52

SUMMARY OF PAVEMENT MARKINGS

LOCATION	4" Solid WHITE Edge Line	6" Solid WHITE Edge Line	6" Broken WHITE Lane Line	6" Broken WHITE Lane Line (PCP)	6" Dotted WHITE Extension Line	6" Broken WHITE Lane Drop Line	6" Solid WHITE Lane Line	8" Broken WHITE Lane Drop Line	8" Solid WHITE Gore Line	8" Dotted WHITE Extension Line	12" Solid WHITE Diagonal Line	12" Solid WHITE Chevron Line	12" Solid WHITE Type I Crosswalk Line	24" Solid WHITE Type II Crosswalk Line	24" Solid WHITE Stop Line	4" Solid YELLOW Edge Line	4" Solid YELLOW Double Line	4" Solid YELLOW Line	4" Broken YELLOW Line	6" Solid YELLOW Edge Line	12" Solid YELLOW Diagonal Line
SHEET 1 OF 5		273	1,608		463		223													312	
SHEET 2 OF 5		2,966	2,963		545															2,958	
SHEET 3 OF 5		3,129	3,434		1,084				1,065											3,369	
SHEET 4 OF 5		1,462	1,525		387															1,448	
SHEET 5 OF 5			1,537																		
TOTALS		7,830	2,767		826		223		1,065											8,087	

RECAPITULATION OF QUANTITIES

ITEMS	TOTAL	UNITS
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(4")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(6")	11,646	FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(8")	1,065	FT
PAVEMENT MARKING (MULTI-COMPONENT)(WHITE)(12")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(4")		FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(6")	8,087	FT
PAVEMENT MARKING (MULTI-COMPONENT)(YELLOW)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (THERMOPLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(4")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(6")		FT
PAVEMENT MARKING (THERMOPLASTIC)(YELLOW)(12")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(4")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(6")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(8")		FT
PAVEMENT MARKING (EPOXY)(WHITE)(12")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(4")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(6")		FT
PAVEMENT MARKING (EPOXY)(YELLOW)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(12")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(WHITE)(24")		FT
PAVEMENT MARKING (INTERSECTION GRADE)(YELLOW)(12")		FT
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(WHITE)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(US-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(K-SHIELD)( )		EACH
PAVEMENT MARKING SYMBOL (INTERSECTION GRADE)(I-SHIELD)( )		EACH
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(6")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(8")		FT
PAVEMENT MARKING (PATTERNED COLD PLASTIC)(WHITE)(12")		FT
PAVEMENT MARKING REMOVAL		FT

SUMMARY OF WORD & SYMBOL MARKINGS

LOCATION							STOP	ONLY	X-ING	SCHOOL	70	435	24	400	18						
TOTALS																					

NOTE:
WORDS & SYMBOLS SHALL CONFORM TO THE LATEST EDITION OF "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

PRIOR TO COMMENCEMENT OF PAVEMENT MARKING WORK THE ENGINEER WILL ESTABLISH THE LIMITS FOR "NO PASSING" ZONES. THESE LIMITS SHALL BE USED FOR THE LOCATION OF "NO PASSING" LINES AND FOR THE COMPUTATION OF ACTUAL MARKING QUANTITIES FOR THIS LINE TYPE.

NOTE: FOR SPECIFIC PAVEMENT MARKING DETAILS AND DIMENSIONS SEE PLAN SHEETS

NOTE: ALL TOTALS REFLECT ACTUAL QUANTITY OF PAVEMENT MARKING MATERIALS REQUIRED.

NO.	DATE	REVISIONS	BY	APP'D
2	5/25/12	Added Line Types, Symbols, and Shields	B.A.H.	B.D.G.
1	7/26/05	New FHWA Approval Date	J.F.F.	B.D.G.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY AND RECAPITULATION OF PAVEMENT MARKING QUANTITIES

TE311

FHWA APPROVAL			5/25/2012	APP'D	Brian D. Gower
DESIGNED	J.F.F.	DETAILED	J.F.F.	QUANTITIES	TRACED
DESIGN CK.	B.D.G.	DETAIL CK.	B.D.G.	QUAN. CK.	TRACE CK.

KDOT Graphics Certified 03-01-2022

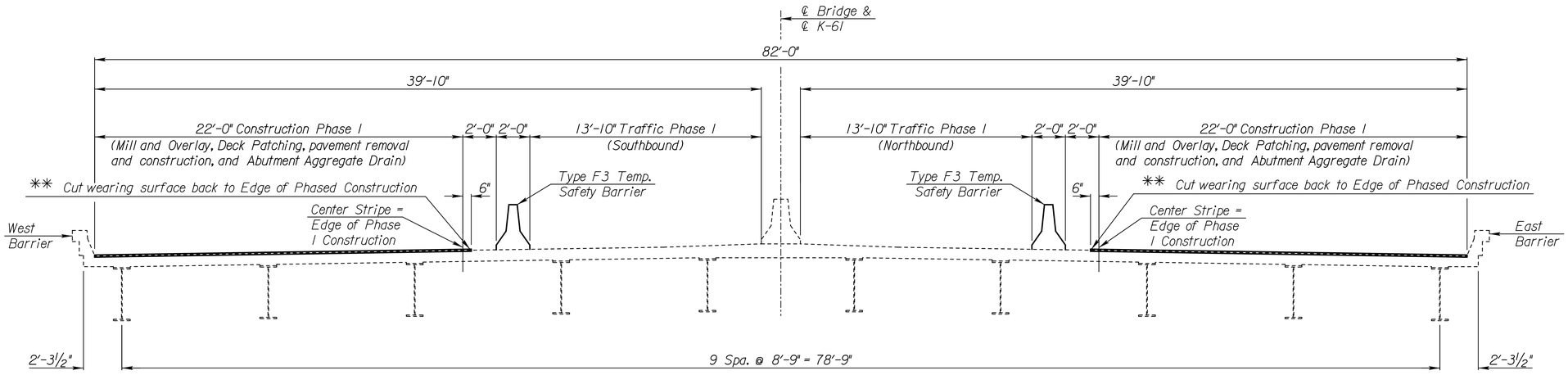
Sh. No. 25

KDOT Graphics Certified

Plotted : 01-MAR-2022 15:37

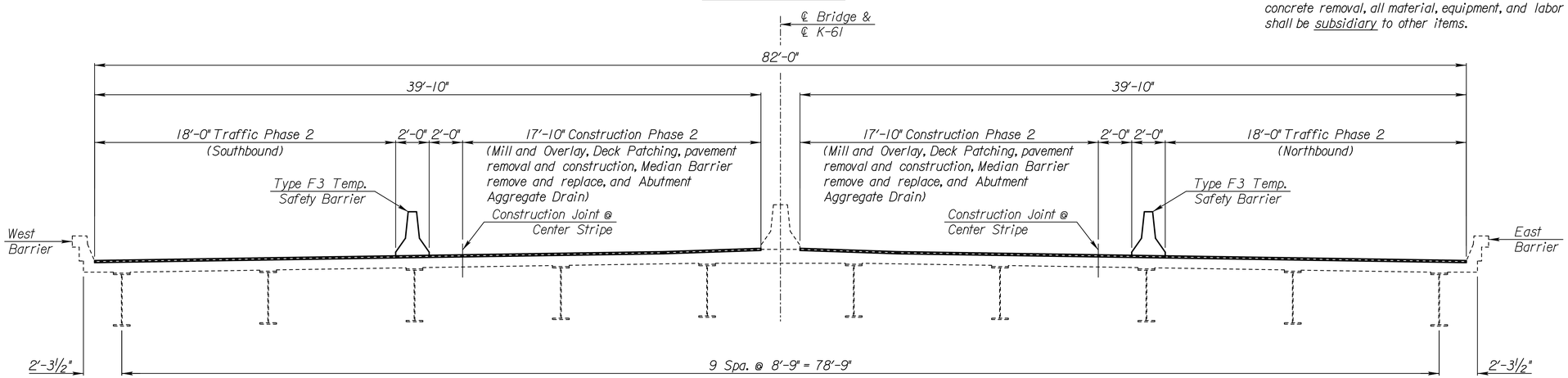
Drawn By : cnovosel
File : te311.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	26	52



BRIDGE 076 PHASE 1

** Note: Cutting the wearing surface back to the Edge of Phased Construction, concrete removal, all material, equipment, and labor necessary for this item shall be subsidiary to other items.



BRIDGE 076 PHASE 2

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.11 (076) Co. Ref. Pt. 36.98

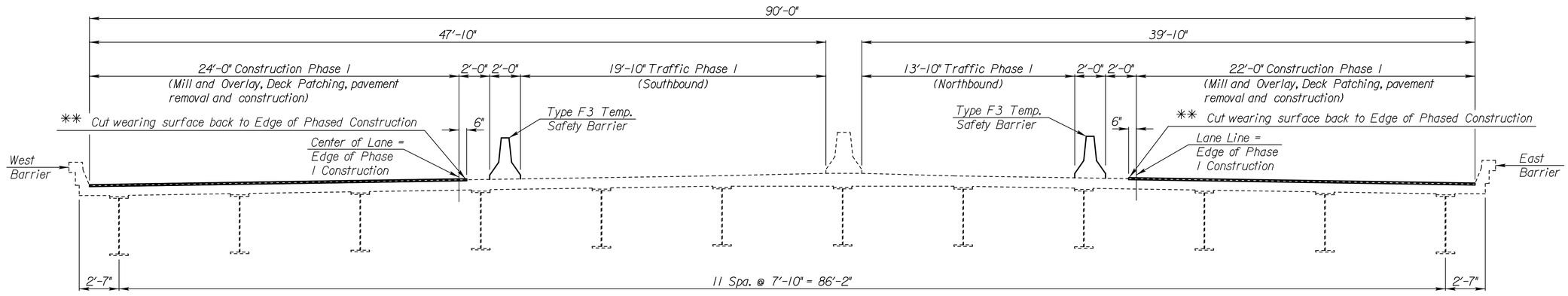
CONSTRUCTION STAGING BRIDGE (076)
K-61 OVER BNSF R.R.

Proj. 61-78 KA-6135-01 Reno Co.

SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

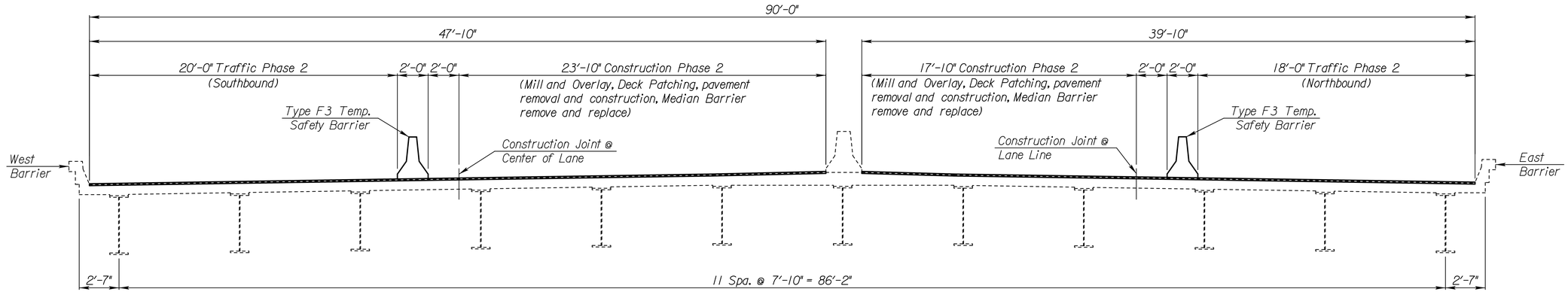
Plotted By: mbender | Plot Location:
File: 1449909_26_078-076_Con_Staging.dgn
Plot Date: 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	27	52



BRIDGE 079 PHASE 1

** Note: Cutting the wearing surface back to the Edge of Phased Construction, concrete removal, all material, equipment, and labor necessary for this item shall be subsidiary to other items.



BRIDGE 079 PHASE 2

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

Br. No. 61-78-55.61(079) Co. Ref. Pt. 37.48

CONSTRUCTION STAGING BRIDGE (079)
K-61 OVER BNSF R.R.

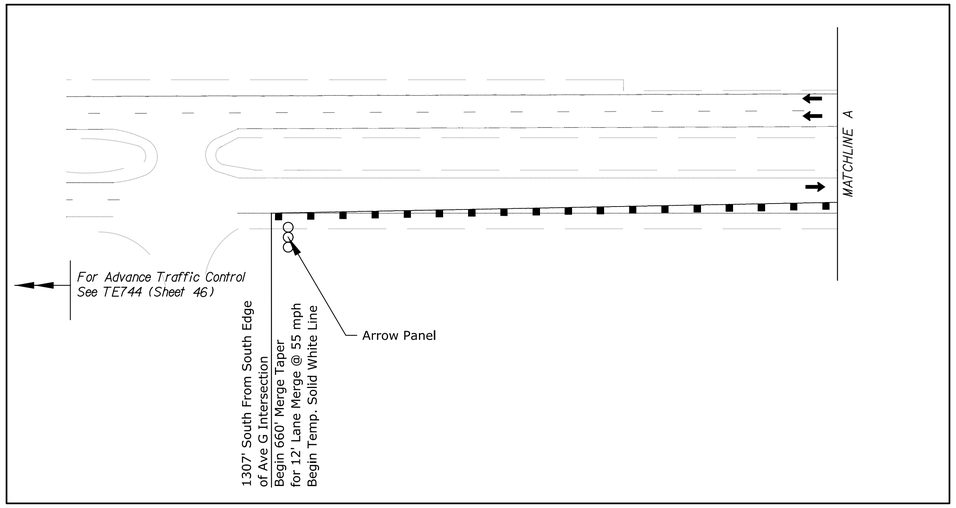
Proj. 61-78 KA-6135-01 Reno Co.

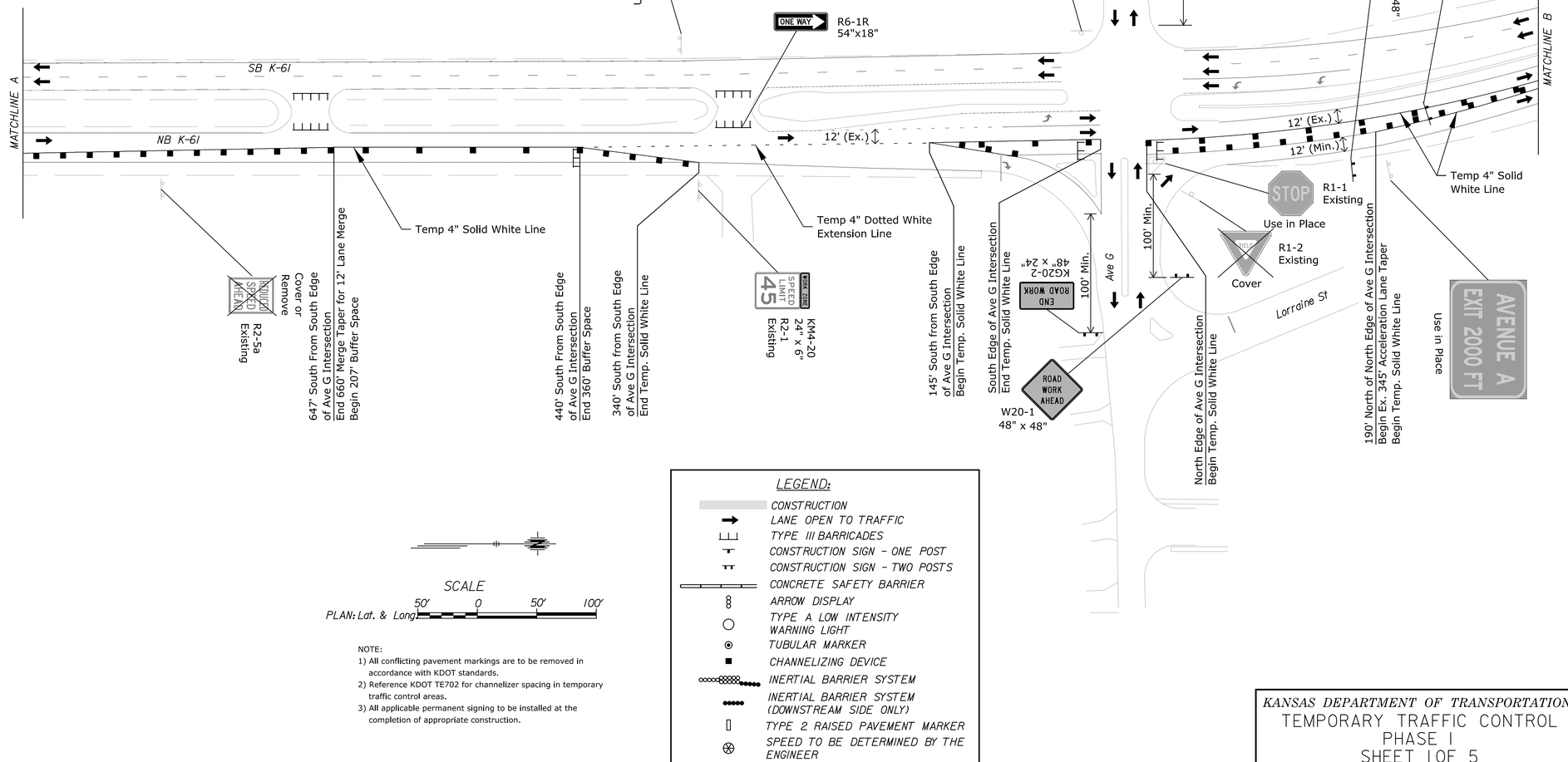
SHEET NO. OF	SCALE	APP'D	
DESIGNED	DETAILED	QUANTITIES	CADD
DESIGN CK.	DETAIL CK.	QUAN. CK.	CADD CK.

Plotted By: mbender Plot Location:
File: 1449909_27_078-079_Con_Staging.dgn
Plot Date: 07-JAN-2022 14:04

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	28	52

Traffic Control Note:
There is a City of Hutchinson project 078 U-2395-01 that is anticipated to be let by the City in August 2022. The presumed work items and construction schedule is such that there may be coordination needed between the contractors on both projects.





SCALE
PLAN: Lat. & Long 50' 0 50' 100'

NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

LEGEND:
- CONSTRUCTION
- LANE OPEN TO TRAFFIC
- TYPE III BARRICADES
- CONSTRUCTION SIGN - ONE POST
- CONSTRUCTION SIGN - TWO POSTS
- CONCRETE SAFETY BARRIER
- ARROW DISPLAY
- TYPE A LOW INTENSITY WARNING LIGHT
- TUBULAR MARKER
- CHANNELIZING DEVICE
- INERTIAL BARRIER SYSTEM
- INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
- TYPE 2 RAISED PAVEMENT MARKER
- SPEED TO BE DETERMINED BY THE ENGINEER

KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE I
SHEET 1 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 28

Plotted : 01-MAR-2022 15:37
Drawn By: : cnovosel
File : ka613501cpl-01.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	29	52

NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

LEGEND:

- CONSTRUCTION
- LANE OPEN TO TRAFFIC
- TYPE III BARRICADES
- CONSTRUCTION SIGN - ONE POST
- CONSTRUCTION SIGN - TWO POSTS
- CONCRETE SAFETY BARRIER
- ARROW DISPLAY
- TYPE A LOW INTENSITY WARNING LIGHT
- TUBULAR MARKER
- CHANNELIZING DEVICE
- INERTIAL BARRIER SYSTEM
- INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
- TYPE 2 RAISED PAVEMENT MARKER
- SPEED TO BE DETERMINED BY THE ENGINEER

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC CONTROL
PHASE I
SHEET 2 OF 5

Plotted : 01-MAR-2022 15:37

Drawn By : cnovosel
File : ka613501cpl-02.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	30	52

SCALE

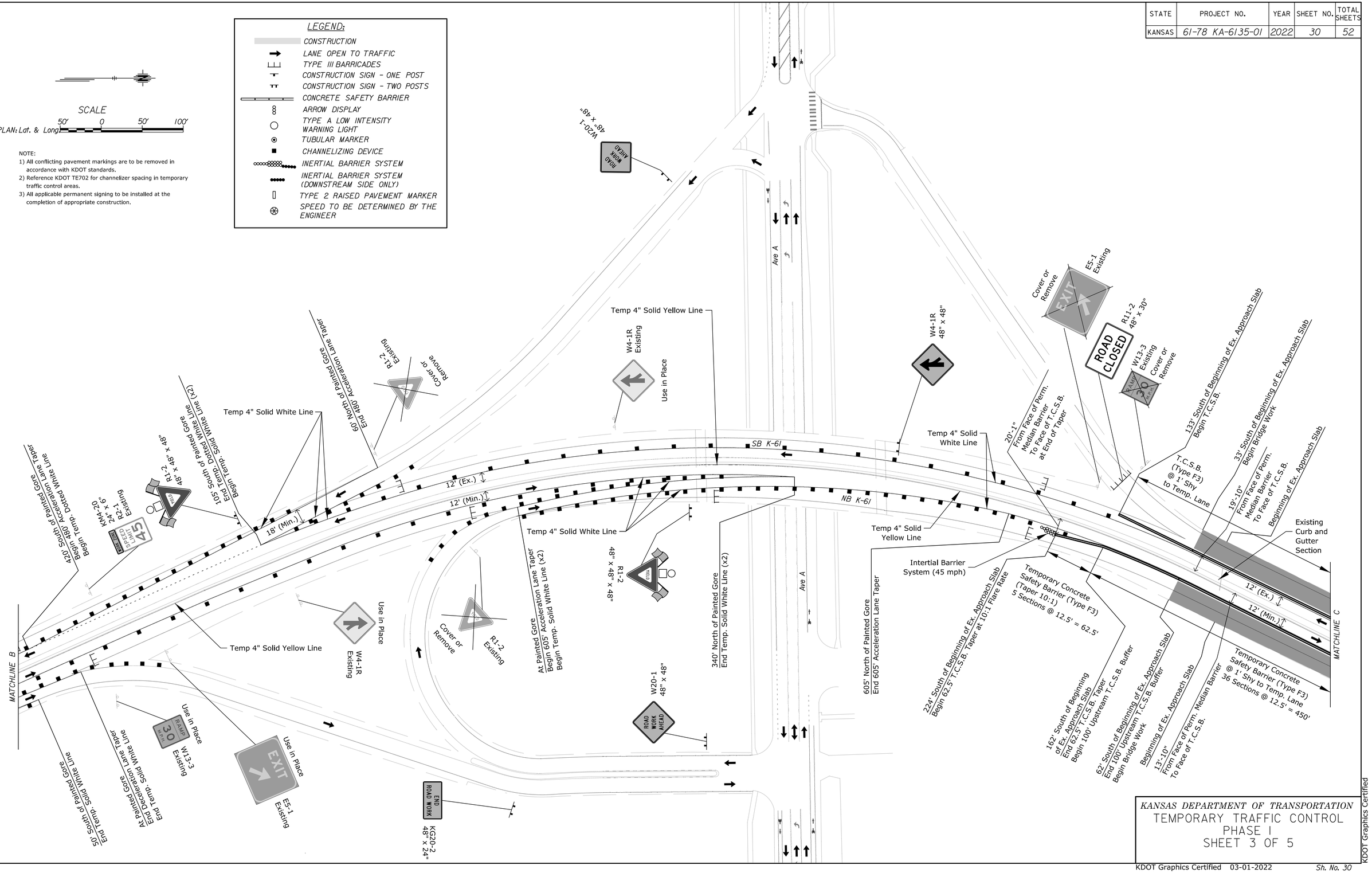
50' 0 50' 100'

PLAN: Lat. & Long

NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

LEGEND:

- CONSTRUCTION
- LANE OPEN TO TRAFFIC
- TYPE III BARRICADES
- CONSTRUCTION SIGN - ONE POST
- CONSTRUCTION SIGN - TWO POSTS
- CONCRETE SAFETY BARRIER
- ARROW DISPLAY
- TYPE A LOW INTENSITY WARNING LIGHT
- TUBULAR MARKER
- CHANNELIZING DEVICE
- INERTIAL BARRIER SYSTEM
- INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
- TYPE 2 RAISED PAVEMENT MARKER
- SPEED TO BE DETERMINED BY THE ENGINEER



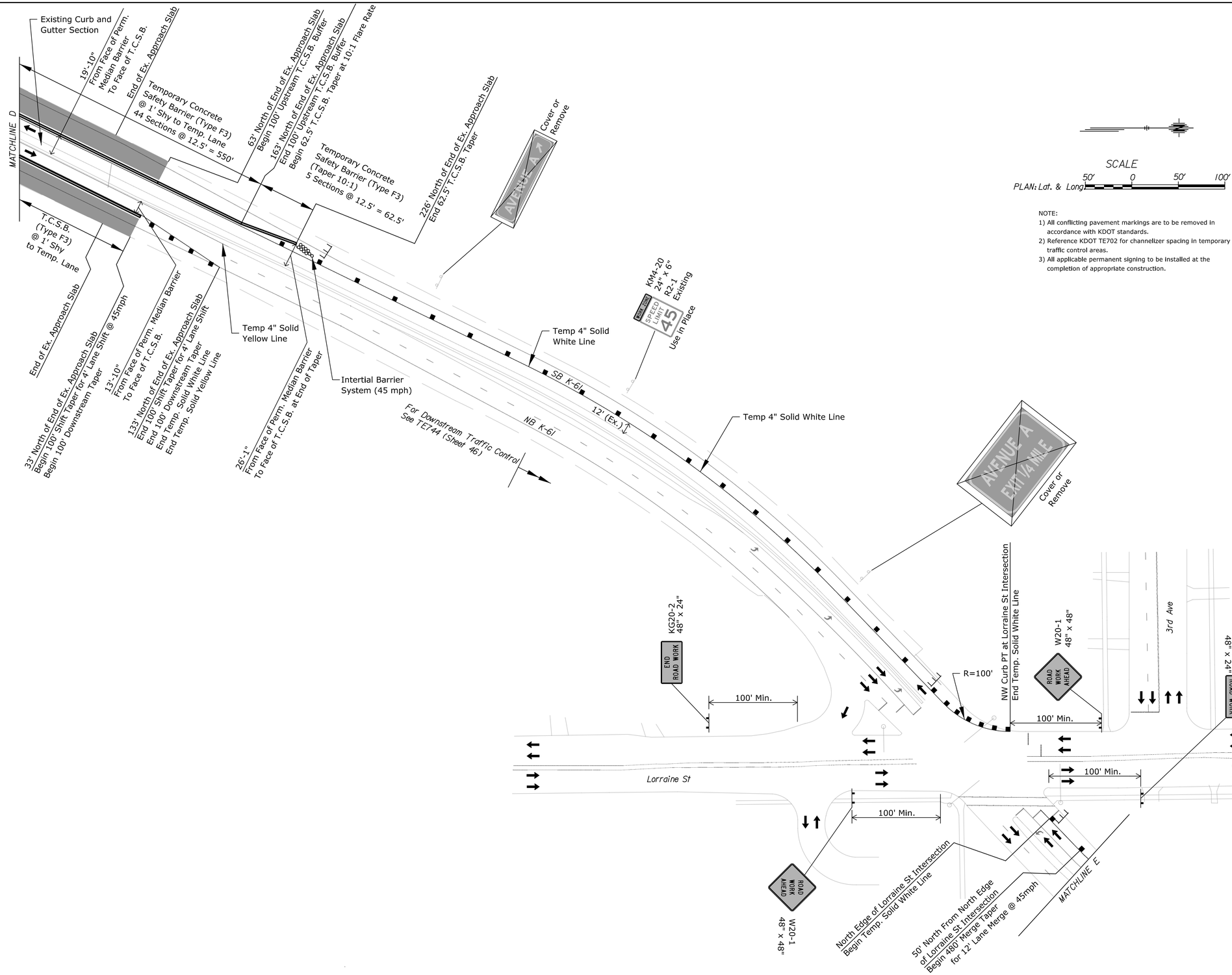
KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE I
SHEET 3 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 30

KDOT Graphics Certified

Drawn By: cnovosel
File: ka613501cpl-03.dgn
Plotted: 01-MAR-2022 15:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	31	52



KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE I
SHEET 4 OF 5

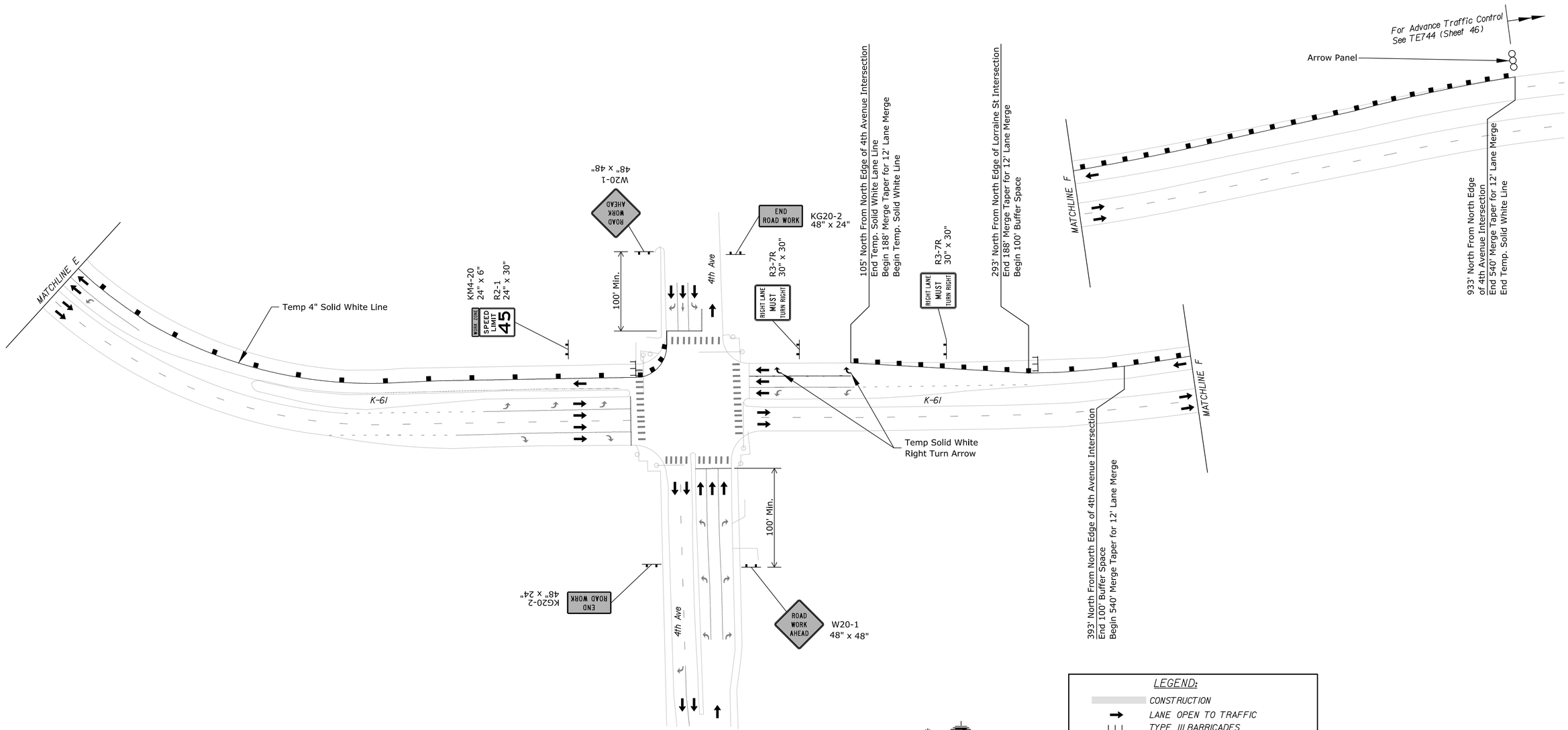
KDOT Graphics Certified 03-01-2022 Sh. No. 31

KDOT Graphics Certified

Drawn By : cnovosel
File : ka613501cpl-04.dgn

Plotted : 01-MAR-2022 15:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	32	52



NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

LEGEND:

- CONSTRUCTION
- LANE OPEN TO TRAFFIC
- TYPE III BARRICADES
- CONSTRUCTION SIGN - ONE POST
- CONSTRUCTION SIGN - TWO POSTS
- CONCRETE SAFETY BARRIER
- ARROW DISPLAY
- TYPE A LOW INTENSITY WARNING LIGHT
- TUBULAR MARKER
- CHANNELIZING DEVICE
- INERTIAL BARRIER SYSTEM
- INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
- TYPE 2 RAISED PAVEMENT MARKER
- SPEED TO BE DETERMINED BY THE ENGINEER

KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE I
SHEET 5 OF 5

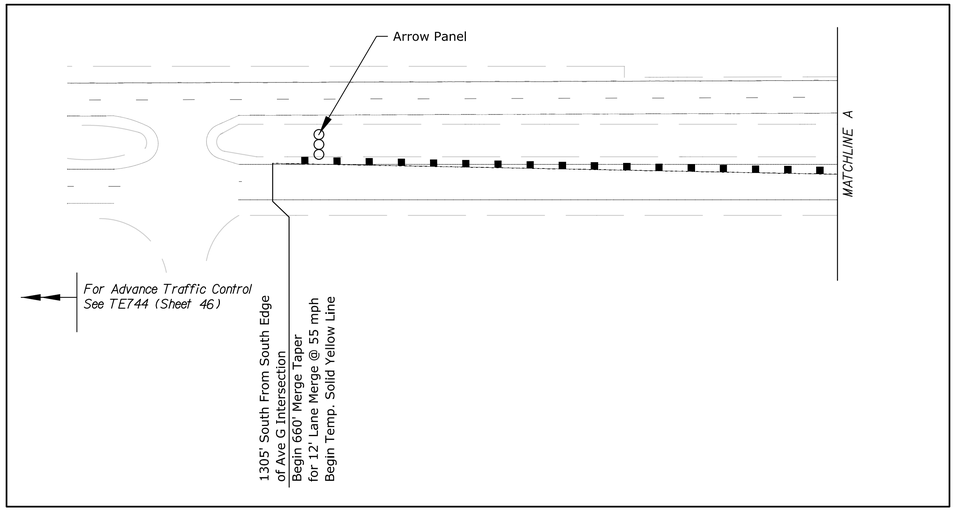
Drawn By : cnovosel
File : ka613501cpl-05.dgn
Plotted : 01-MAR-2022 15:37

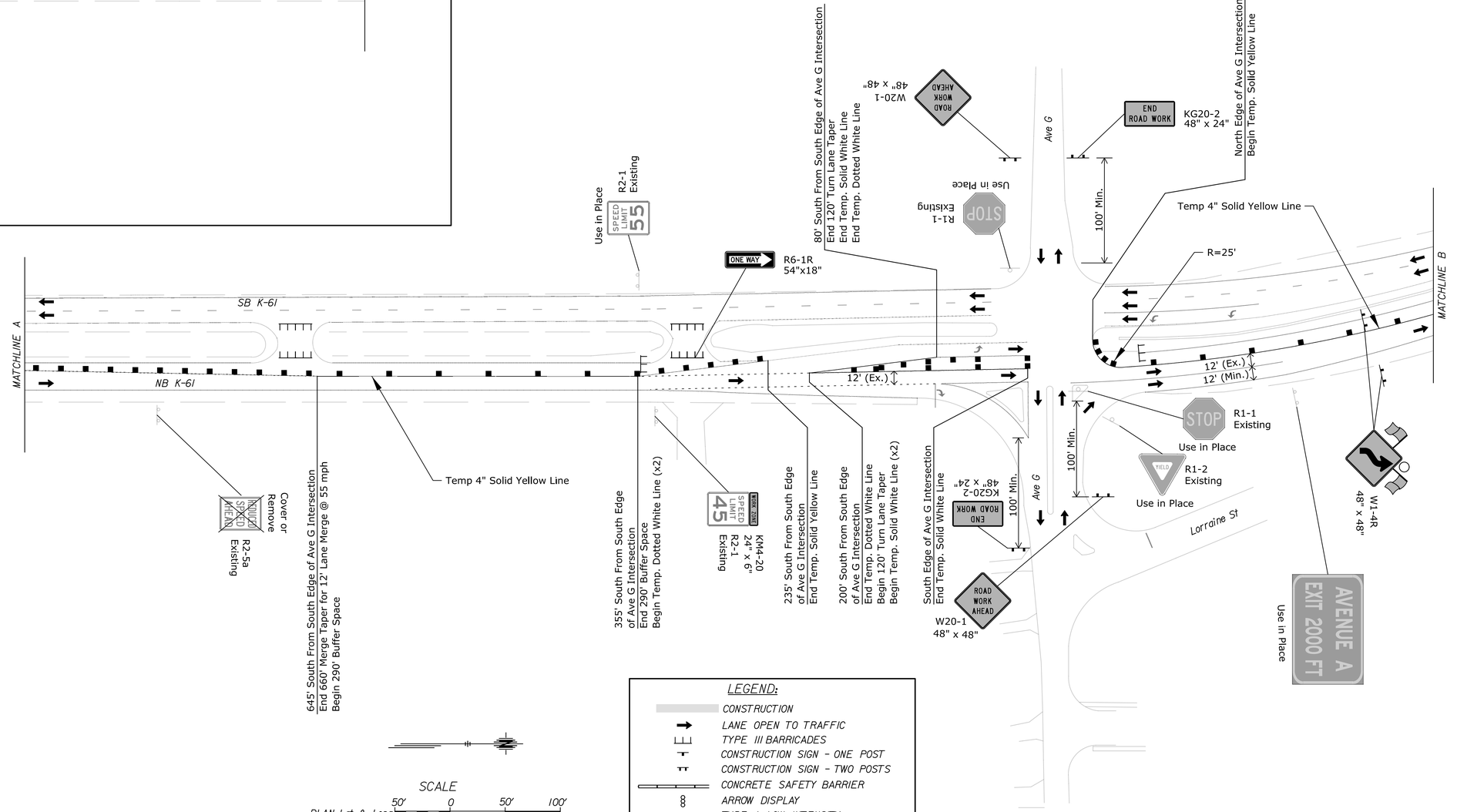
KDOT Graphics Certified 03-01-2022 Sh. No. 32

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	33	52

Traffic Control Note:
There is a City of Hutchinson project 078 U-2395-01 that is anticipated to be let by the City in August 2022. The presumed work items and construction schedule is such that there may be coordination needed between the contractors on both projects.





SCALE
50' 0 50' 100'
PLAN: Lat. & Long

NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

LEGEND:
- CONSTRUCTION
- LANE OPEN TO TRAFFIC
- TYPE III BARRICADES
- CONSTRUCTION SIGN - ONE POST
- CONSTRUCTION SIGN - TWO POSTS
- CONCRETE SAFETY BARRIER
- ARROW DISPLAY
- TYPE A LOW INTENSITY WARNING LIGHT
- TUBULAR MARKER
- CHANNELIZING DEVICE
- INERTIAL BARRIER SYSTEM
- INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
- TYPE 2 RAISED PAVEMENT MARKER
- SPEED TO BE DETERMINED BY THE ENGINEER

KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 1 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 33

KDOT Graphics Certified

Plotted : 01-MAR-2022 15:37
Drawn By : cnovosel
File : ka613501cpl-11.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	34	52

SCALE
PLAN: Lat. & Long. 50' 0 50' 100'

NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

LEGEND:

- CONSTRUCTION
- LANE OPEN TO TRAFFIC
- TYPE III BARRICADES
- CONSTRUCTION SIGN - ONE POST
- CONSTRUCTION SIGN - TWO POSTS
- CONCRETE SAFETY BARRIER
- ARROW DISPLAY
- TYPE A LOW INTENSITY WARNING LIGHT
- TUBULAR MARKER
- CHANNELIZING DEVICE
- INERTIAL BARRIER SYSTEM
- INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
- TYPE 2 RAISED PAVEMENT MARKER
- SPEED TO BE DETERMINED BY THE ENGINEER

KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 2 OF 5

Plotted : 01-MAR-2022 15:37
Drawn By : cnovosel
File : ka613501cpl-12.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	35	52

LEGEND:

▭	CONSTRUCTION
→	LANE OPEN TO TRAFFIC
⊔⊔	TYPE III BARRICADES
┬	CONSTRUCTION SIGN - ONE POST
╥	CONSTRUCTION SIGN - TWO POSTS
═	CONCRETE SAFETY BARRIER
8	ARROW DISPLAY
○	TYPE A LOW INTENSITY WARNING LIGHT
⊙	TUBULAR MARKER
■	CHANNELIZING DEVICE
○○○●●	INERTIAL BARRIER SYSTEM
●●●●●	INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
▯	TYPE 2 RAISED PAVEMENT MARKER
⊛	SPEED TO BE DETERMINED BY THE ENGINEER

SCALE

PLAN: Lat. & Long. 50' 0 50' 100'

NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

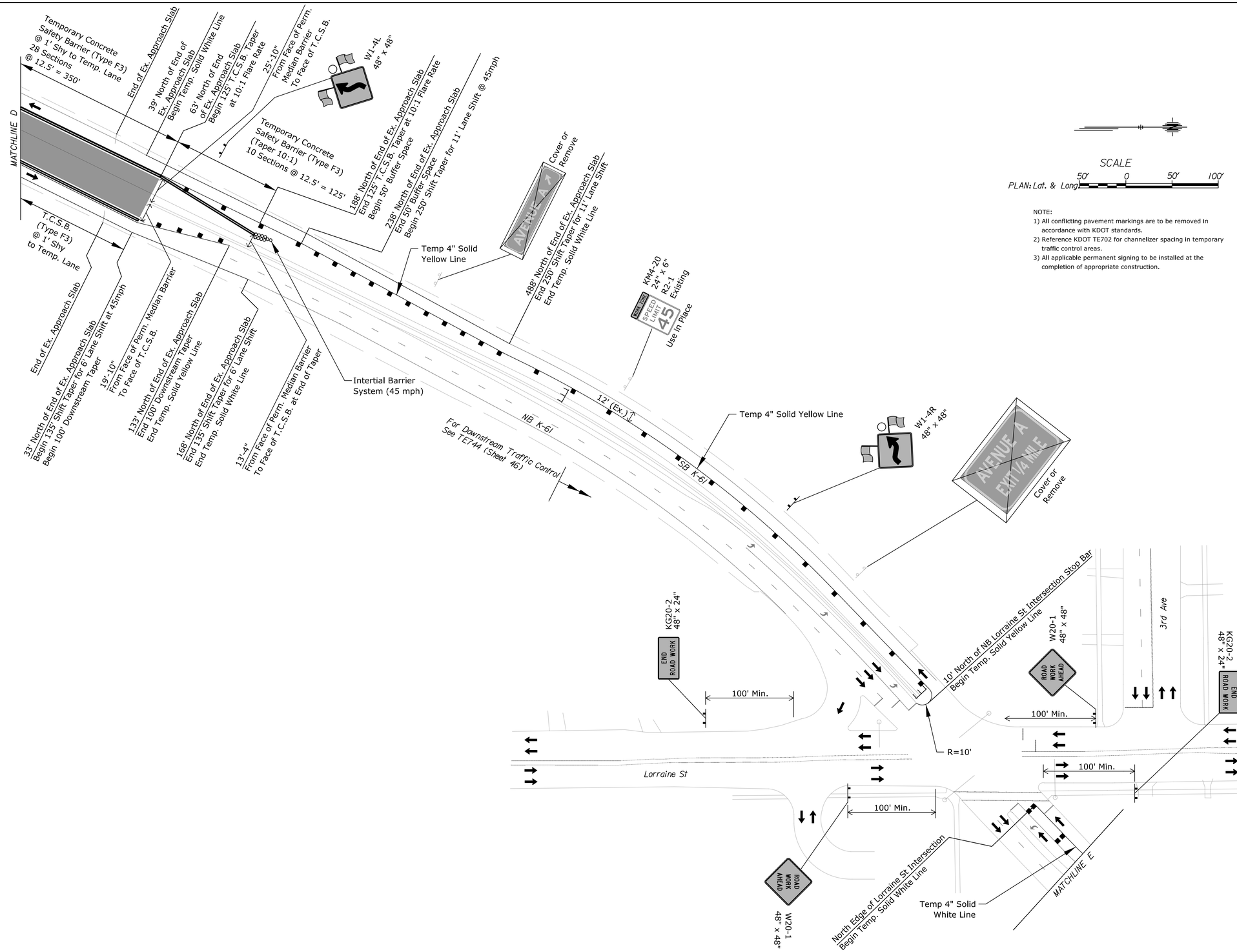
Plotted : 01-MAR-2022 15:37

Drawn By : cnovosel
File : ka613501cpl-13.dgn

KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 3 OF 5

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	36	52



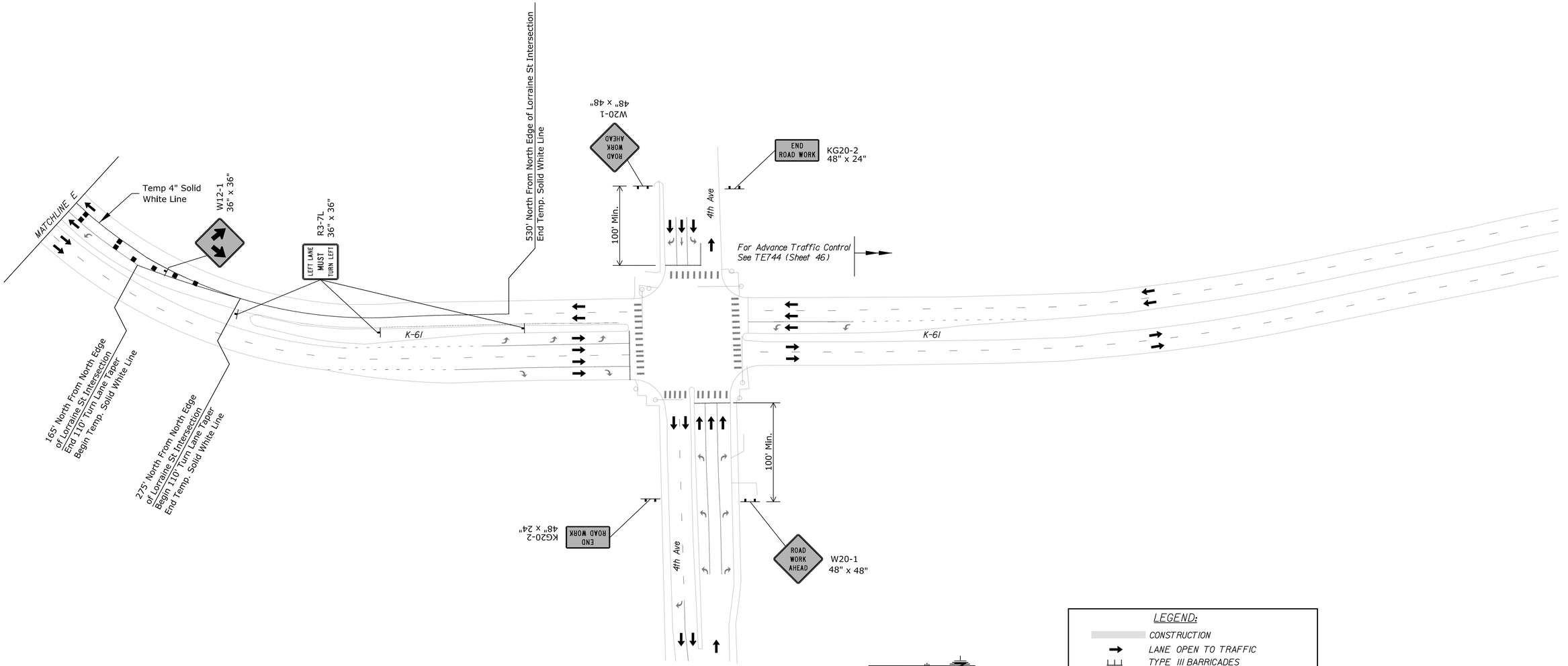
KANSAS DEPARTMENT OF TRANSPORTATION
TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 4 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 36

KDOT Graphics Certified

Drawn By : cnovosel
File : ka613501cpl-14.dgn
Plotted : 01-MAR-2022 15:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	37	52



SCALE

50' 0 50' 100'

PLAN: Lat. & Long

NOTE:
1) All conflicting pavement markings are to be removed in accordance with KDOT standards.
2) Reference KDOT TE702 for channelizer spacing in temporary traffic control areas.
3) All applicable permanent signing to be installed at the completion of appropriate construction.

LEGEND:

- CONSTRUCTION
- LANE OPEN TO TRAFFIC
- TYPE III BARRICADES
- CONSTRUCTION SIGN - ONE POST
- CONSTRUCTION SIGN - TWO POSTS
- CONCRETE SAFETY BARRIER
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- CHANNELIZING DEVICE
- INERTIAL BARRIER SYSTEM
- INERTIAL BARRIER SYSTEM (DOWNSTREAM SIDE ONLY)
- TYPE 2 RAISED PAVEMENT MARKER
- SPEED TO BE DETERMINED BY THE ENGINEER

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 5 OF 5

KDOT Graphics Certified 03-01-2022 Sh. No. 37

KDOT Graphics Certified

Drawn By : cnovosel
File : ka613501cpl-15.dgn
Plotted :01-MAR-2022 15:37

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	38	52

1) Design Speed: Those items delegated to temporary traffic control should be designed and installed using the posted/legal speed of the roadway prior to work starting.

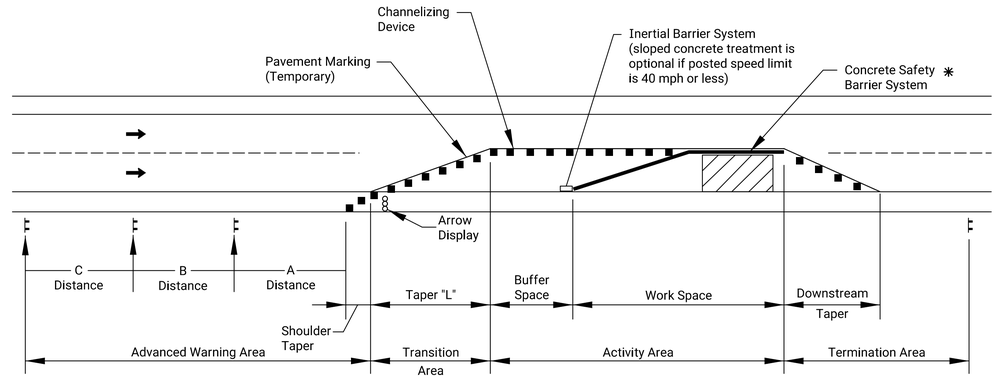
2) Minimum Lane Width: Lane widths shall be a minimum of 11' (measured between centerlines of pavement markings) or as shown on the plans, or as directed by the engineer. A lane width less than 11' may require restricted roadway width signing.

3) Consideration should be made to separate pedestrian and, if needed, bicycle movements from both work site activity and vehicular traffic. Unless a reasonable safe route that does not involve crossing the roadway can be provided, pedestrians should be appropriately directed with advance signing that encourages them to cross to the opposite side of the roadway. In urban and suburban areas with high vehicular traffic volumes, these signs should be placed at intersections (rather than midblock locations) so that pedestrians are not confronted with midblock work sites that will induce them to attempt skirting the work site or making a midblock crossing.

4) When existing pedestrian facilities are disrupted, closed, or relocated, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility.

5) When the driving surface open to traffic is milled or is a temporary surface made of loose material, or when directed by the engineer a W8-15 (Grooved Pavement) or W8-7 (Loose Gravel) sign shall be used on mainline approaches. This sign should be placed a "C" distance after the W20-1 (Road Work Ahead) sign. A W8-15p motorcycle plaque shall be used to supplement the W8-15 or W8-7 signs. All signs shall be displayed as long as the condition is present.

6) Alternative temporary rumble strip options may be available. Please contact the Temporary Traffic Control Unit for more information at 785-296-1179 or 785-296-1183.



TYPICAL WORK ZONE COMPONENTS

✳ When concrete barrier system is used, portable channelizing devices are not needed along the tangent barrier section.

Minimum advance warning sign spacing (in feet):

SPEED (MPH) ✳	*A*	*B*	*C*
URBAN (40 MPH OR LOWER)	*100*	*100*	*100*
URBAN (45 MPH OR HIGHER)	*350*	*350*	*350*
RURAL (55 MPH OR LOWER)	*500*	*500*	*500*
RURAL (60 MPH OR HIGHER)	*750*	*750*	*750*
EXPRESSWAY/FREEWAY	*1000*	*1500*	*2640*

✳ Posted speed prior to work starting

The minimum spacing between signs shall be no less than 100', unless directed by the engineer.

The spacing between any signs may be increased beyond the minimum values in the table above as approved by the engineer in order to maximize visibility.

Taper Formulas:

L = WS for speeds of 45 MPH or more

$L = WS^2/60$ for speeds of 40 MPH or less

Where: L = Minimum length of taper in feet
S = Numericial value of posted speed prior to work starting in MPH
W = Width in offset feet

Shifting Taper=1/2 L
Shoulder Taper=1/3 L

Channelizer Placement:

(1) The spacing between devices in transition area (taper) should not exceed a distance in feet equal to 1/2 the posted speed limit in mph prior to work starting.

(2) The spacing between devices in the advanced warning area and the activity area should not exceed a distance in feet equal to two times the posted speed limit in mph prior to work starting.

(3) Channelizing devices shall be placed for optimum visibility, normally at right angles to the traffic flow.

(4) Place directional indicator barricades in series to direct traffic onto the new path. The arrow sign should not be visible to opposing traffic.

(5) Alternating diagonal orange and white striping must slope downward in the direction traffic is expected to pass.

Buffer Space

SPEED (MPH) ✳	*20*	*25*	*30*	*35*	*40*	*45*	*50*	*55*	*60*	*65*	*70*	*75*
LENGTH (ft)	*115*	*155*	*200*	*250*	*305*	*360*	*425*	*495*	*570*	*645*	*730*	*820*

✳ Posted speed prior to work starting

Neither work activity nor storage of equipment, vehicles, or material should occur in the buffer space. When a protection vehicle is placed in advance of the work space, only the space upstream of the vehicle constitutes the buffer space.

If temporary concrete safety barrier system is used to separate approaching traffic from the work space, the barrier system shall be considered part of the activity area. A full lane width should be available throughout the length of the buffer space. See typical work zone components above.

NO.	DATE	REVISIONS	BY	APP'D
3				
2	03/13/18	W8-15p usage changed to Shall	R.W.B.	E.G.K.
1	08/18/15	Channelizer spacing info	R.W.B.	K.E.

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
GENERAL NOTES

TE700

FHWA APPROVAL		03/13/18	APP'D	Eric Kocher	
DESIGNED	B.A.H.	DETAILED	R.W.B	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

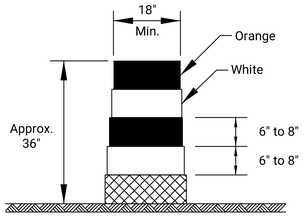
KDOT Graphics Certified 03-01-2022

Sh. No. 38

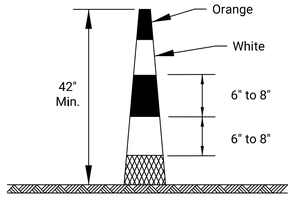
KDOT Graphics Certified

Plotted :01-MAR-2022 15:37
Drawn By : cnovosel
File : te700.dgn

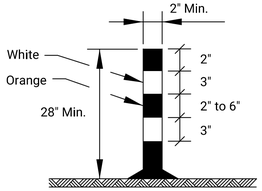
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	39	52



DRUM

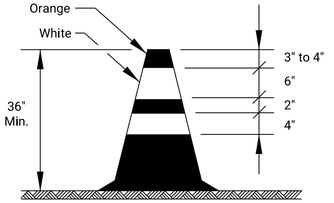


CONICAL DELINEATOR

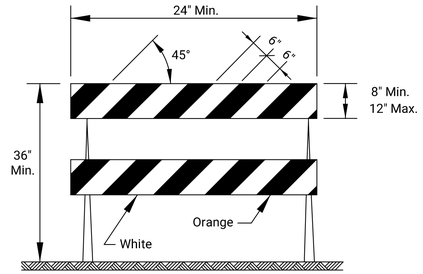


TUBULAR MARKER

Striping as shown for up to 42".

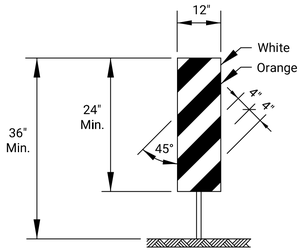


TRAFFIC CONE



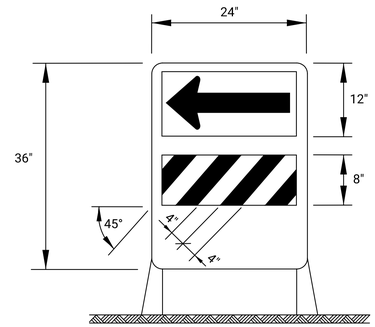
TYPE 2 BARRICADE

For rails less than 36" long, 4" wide stripes may be used. All stripes shall slope downward to the traffic side for channelization.



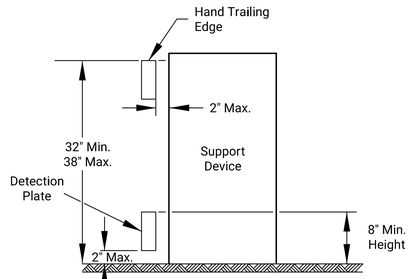
VERTICAL PANEL

The stripes shall slope downward to the traffic side for channelization.



DIRECTION INDICATOR BARRICADE

The stripes shall slope downward in the direction traffic is to pass. The direction indicator barricade shall be used in series to direct the motorist into the intended lane of travel.



PEDESTRIAN CHANNELIZER

1. Support device shall not project beyond the detection plate into the pathway.
2. Hand trailing edges and detection plates are optional for continuous walls.
3. Interconnect pedestrian channelizers to prevent displacement and to provide continuous guidance through or around work.
4. Alternate pathways shall be firm, stable, and slip resistant.
5. Treat height differentials > 1/2" in the surfaces of alternate paths with a firm, stable, and slip resistant temporary ramp having a slope of 12:1 or flatter and having a width equal to the alternate path.
6. Use alternating orange/white on interconnected devices.

Item	Location	Cross-overs	Shoofly Diversions	Tangents	Tapers	Ramps	Head to Head	Object Identifier	Lead-in Devices	Gores
Portable										
	Drums	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Conical Delineators	Yes	Yes	Yes	Yes	Yes	(1)	Yes	Yes	Yes
	Vertical Panels	(2)	(2)	(2)	(2)	(2)	(1,2)	Yes	(2)	(2)
	Direction Indicator Barricade	No	No	No	Yes	No	No	No	No	No
	Type 2 Barricade	(2)	(2)	(2)	(2)	No	No	Yes	No	No
	Traffic Cones	No	No	(4)	(4)	(4)	No	(4)	(4)	(4)
Fixed										
	Tubular Markers	(3)	(3)	(3)	No	(3)	Yes	No	Yes	Yes
	Vertical Panels	(3)	(3)	(3)	(3)	(3)	(3)	Yes	(2,3)	(2)

(1) Not allowed on centerline delineation along freeways or expressways.
(2) The stripes shall slope downward to the traffic side for channelization.
(3) May be used upon the approval of the engineer.
(4) Daytime operations only.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
CHANNELIZING DEVICES

TE702

FHWA APPROVAL		06/01/15	APP'D	Kristina Ericksen	
DESIGNED	L.E.R.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

KDOT Graphics Certified 03-01-2022

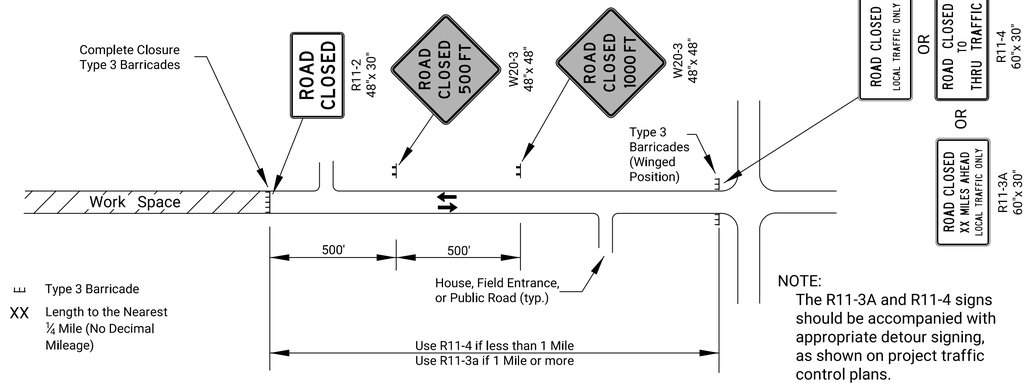
Sh. No. 39

KDOT Graphics Certified

Plotted : 01-MAR-2022 15:37
Drawn By : cnovosel
File : te702.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	40	52

Note: Signs shown for one approach to work zone.



NOTE:
The R11-3A and R11-4 signs should be accompanied with appropriate detour signing, as shown on project traffic control plans.

FIGURE 1: TYPICAL SIGNING FOR ROAD CLOSURE (MAINLINE OR SIDE ROAD)

Note: Sign shown for one approach to intersection (work zone).

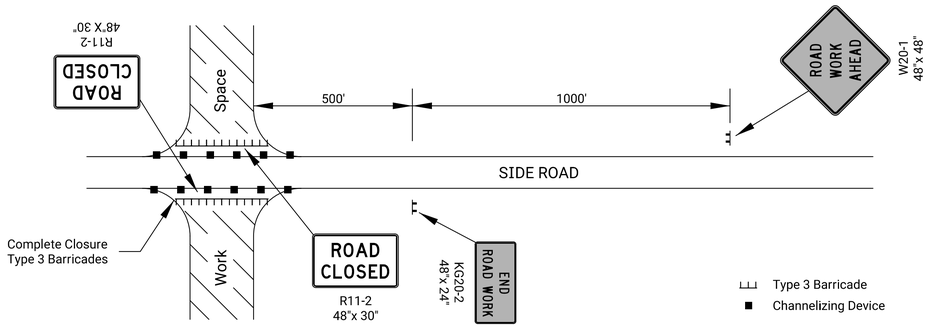


FIGURE 2: TYPICAL SIGNING FOR SIDE ROAD OPEN

Note: Signs shown for one approach to work zone.

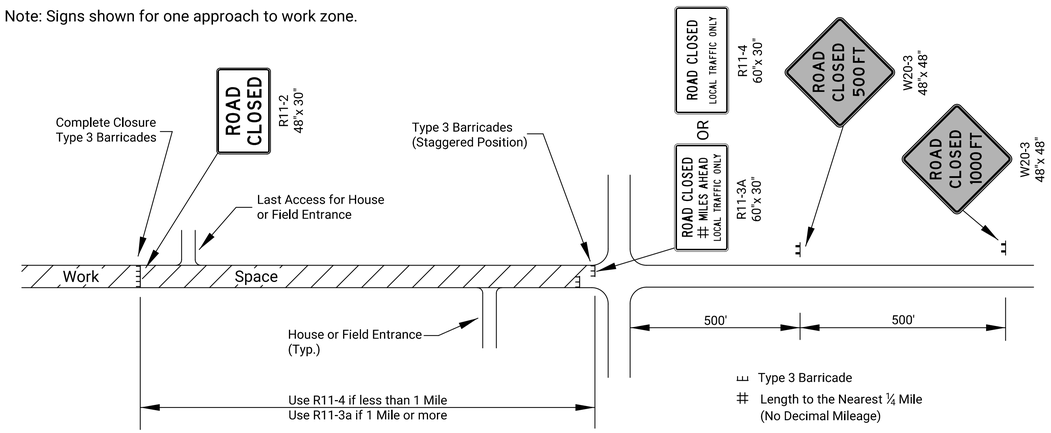


FIGURE 3: TYPICAL SIGNING FOR ROAD CLOSURE - LOCAL TRAFFIC ACCESS

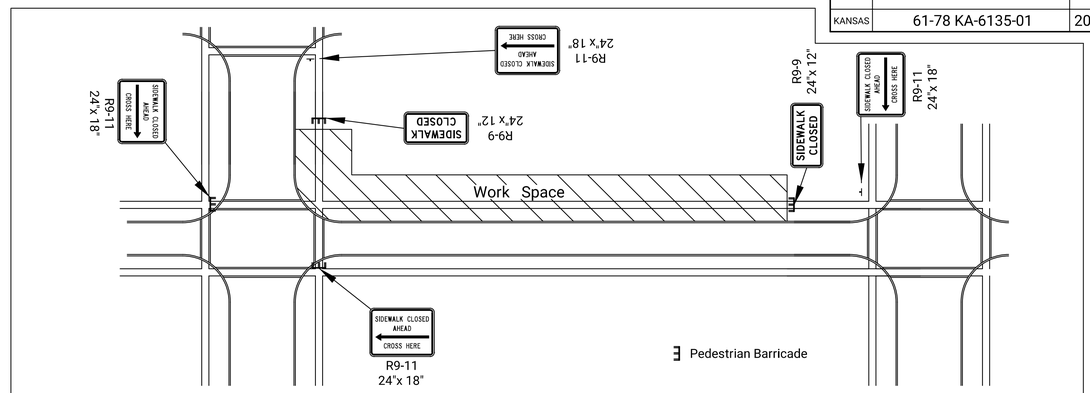
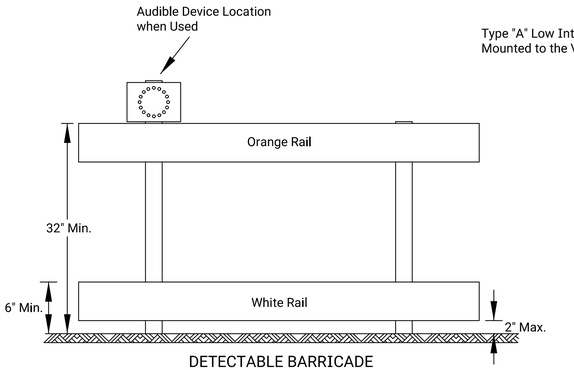
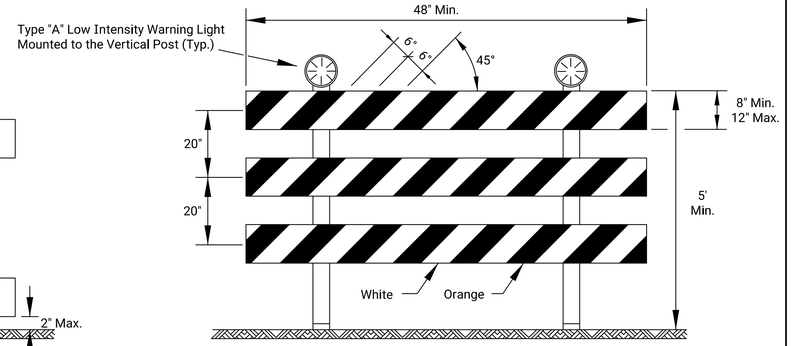


FIGURE 4: TYPICAL SIGNING FOR SIDEWALK CLOSED WITH OPPOSITE SIDEWALK AVAILABLE



DETECTABLE BARRICADE

1. Support device shall not project beyond the detection plate into the pathway.
2. Barricades shall be used to close the entire width of the pathway.
3. Do not use warning lights on pedestrian barricades.
4. Do not use warning lights on audible devices.



TYPE 3 BARRICADE WITH LIGHTS

Approved signs mounted on Type 3 barricades should not cover more than 50% of the top two rails or 33% of the total area of the three rails.

When barricades are placed end-to-end or staggered, a Type "A" low intensity warning light shall be mounted to the vertical post near each outside corner of the end barricades.

ROAD CLOSED GENERAL NOTES

As shown in Figure 1, at the point where thru traffic must detour and local traffic can proceed to the location where the roadway is completely closed, the R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) or R11-4 (ROAD CLOSED LOCAL TRAFFIC ONLY or ROAD CLOSED TO THRU TRAFFIC) sign shall be used with Type 3 barricades (winged position), placed on the shoulders of roadway.

As shown in Figure 3, when local traffic must be allowed access into the work zone, Type 3 barricades shall be longitudinally staggered to maintain the appearance of a closed roadway. A second line of end-to-end Type 3 barricades shall be placed just beyond the last access point in the work zone, to completely close the roadway.

The R11-4 (ROAD CLOSED TO THRU TRAFFIC or ROAD CLOSED LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is less than 1 mile.

The R11-3a (ROAD CLOSED # MILES AHEAD LOCAL TRAFFIC ONLY) sign shall be used when the distance to the point of complete closure of the roadway is 1 mile or greater.

The words "BRIDGE OUT" (or BRIDGE CLOSED) may be substituted for the words "ROAD CLOSED" on the R11-3a or R11-4 sign where applicable.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL CLOSURES

TE704

FHWA APPROVAL			06/01/15	APP'D	Kristina Ericksen		
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES		TRACED	
DESIGN CK.		DETAIL CK.		QUAN. CK.		TRACE CK.	

KDOT Graphics Certified 03-01-2022

Sh. No. 40

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	41	52

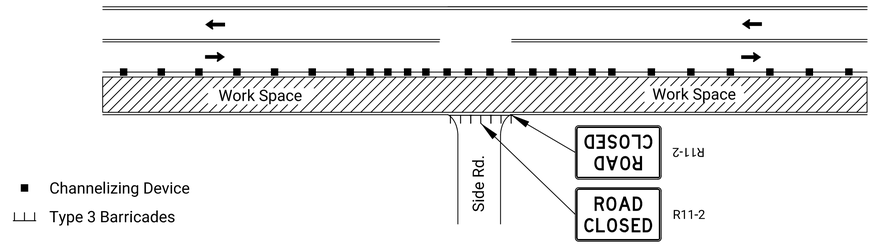

FIGURE 1: SIDE ROAD OR ENTRANCE CLOSED THROUGH WORK AREA

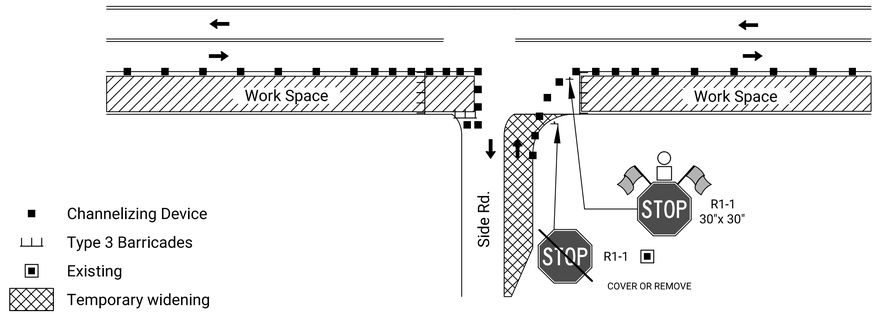

FIGURE 4: SIDE ROAD OR ENTRANCE CONSTRUCTED HALF AT A TIME: TWO WAY TRAFFIC REQUIRED

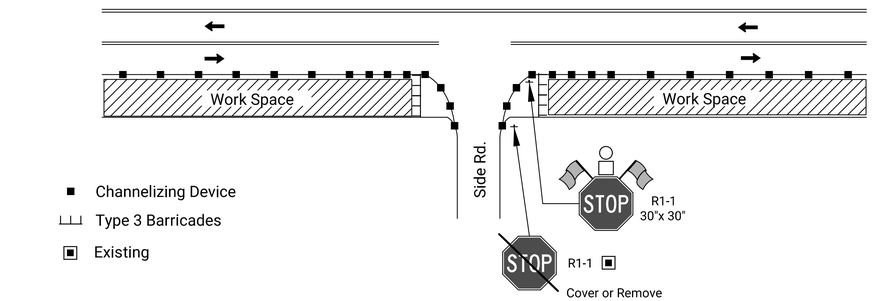

FIGURE 2: SIDE ROAD OR ENTRANCE OPEN THROUGH WORK AREA

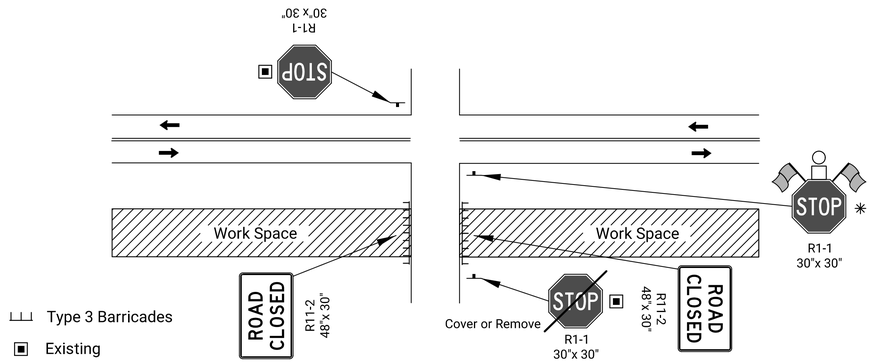

FIGURE 5: SIDE ROAD OPEN THROUGH WORK AREA ON DIVIDED ROADWAY

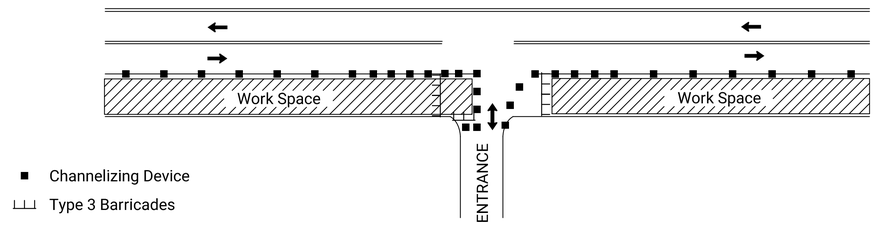

FIGURE 3: LOW VOLUME ENTRANCE CONTRUCTED HALF AT A TIME

Note: Consider large vehicles making right turns into and out of entrance and use figure 4 as needed

NO.	DATE	REVISIONS	BY	APP'D

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
ACCESS THROUGH THE WORK AREA

TE705

FHWA APPROVAL		06/01/15	APP'D	Kristina Ericksen	
DESIGNED	R.W.B.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

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Sh. No. 41

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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	42	52

SIGN LAYOUT INFORMATION

KG20-2

Std. Size Expwy/Freeway
6" C
48"x 24"

KG20-5

Std. Size Expwy/Freeway
6" C
48"x 24"

KM4-20

Std. Size: 3" C, 24"x 6"
Expwy/Freeway: 6" C, 48"x 12"

W7-3a

Mileage to be Determined by the Engineer.

W8-15

Std. Size Expwy/Freeway
8" D
48"x 48"

W8-7

Std. Size Expwy/Freeway
8" D
48"x 48"

W8-15p

Std. Size Expwy/Freeway
30"x 24"

W8-17

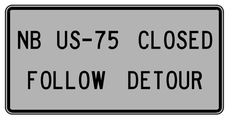
Std. Size Expwy/Freeway
48"x 48"

W8-11

Std. Size Expwy/Freeway
8" D
48"x 48"

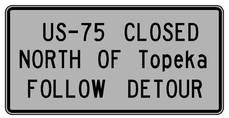
W8-17P
(Optional)

Std. Size Expwy/Freeway
30"x 24"



SP-01
(Special Sign)

Std. Size: 6" C
Expwy/Freeway: 10" D

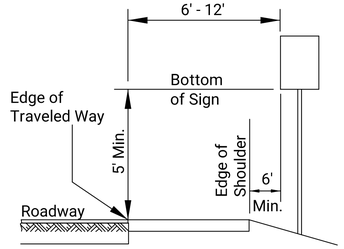


SP-02
(Special Sign)

Std. Size
Uppercase: 6" C
Lowercase: 4.5" C

Expwy/Freeway
Uppercase: 10" D
Lowercase: 8" D

All city names and street names on special signs and destination signs must have upper and lower case letters.

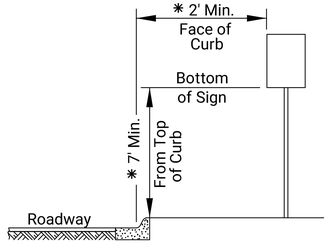


RURAL

1) Ground-mounted signs shall be mounted at a minimum height of 5' measured from the bottom of sign to the near edge of the pavement.

2) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

3) The height of the secondary sign mounted below another sign may be 4' measured from the bottom of the sign to the near edge of the pavement. Signs shall not overlap each other.



URBAN

1) Signs shall be mounted at a minimum height of 7' measured from the bottom of sign to the near edge of the pavement.

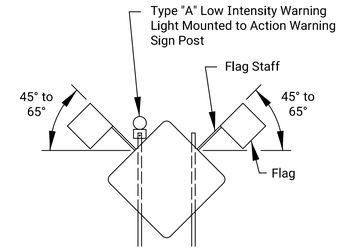
2) Neither portable nor permanent sign supports should be located on sidewalks or areas designated for pedestrian or bicycle traffic.

3) Signs mounted lower than 7' should not project more than 4" into pedestrian facilities.

4) The height from of the secondary sign mounted below another sign may be 6' measured from the bottom of sign to the near edge of the pavement. Signs shall not overlap each other.

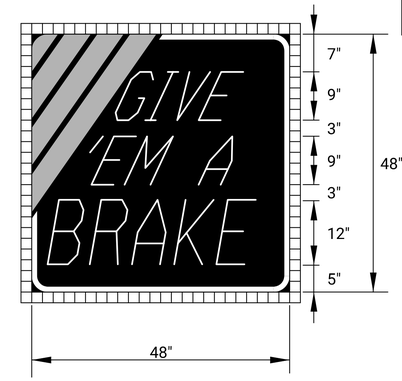
5) Large signs having an area exceeding 50 square feet installed on multiple breakaway posts shall be mounted a minimum of 7' above the ground.

✱ 6) Pedestrian detour signing shall be a minimum of 2' measured from the top of the pedestrian pathway to the bottom of the sign and shall not protrude into the walkway nor shall it project beyond the back of curb.



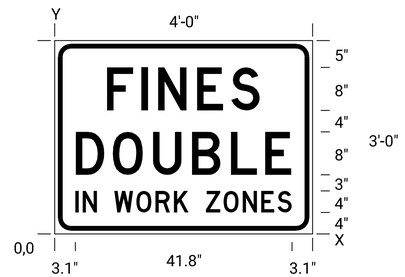
When the sign width is equal to or greater than 9', three or more wood posts may be used with a minimum of 4' between the centerline of each post. All signs less than 9' in width shall use a maximum of two wood posts.

In the case of hitting rock when driving posts
1. Shift the sign location. Do not violate minimum sign spacing.
2. With the engineer's approval, use acceptable alternative sign stands.



KI-104a

Sign Number	GIVE EM A BRAKE
Width x Height	4'-0" x 4'-0"
Border Width	1.0"
Corner Radius	4.0"
Stripe Width	3.0"
Mounting	Ground
Background	Type: Non-Reflective
	Color: Black
Legend/Border	Type: Reflective
	Color: White
Legend Font	Dutch 801 Roman SWC 25 Degree Slant
Stripes	Type: Reflective
	Color: Orange



KI-105a

Sign Number	FINES DOUBLE
Width x Height	4'-0" x 3'-0"
Border Width	0.9"
Corner Radius	3.0"
Mounting	Ground
Background	Type: Reflective
	Color: White
Legend/Border	Type: Non-Reflective
	Color: Black

Dimensions in inches — Spacings are to start of next letter

Y FONT	LETTER SPACINGS															HT LEN
23.0 D	X	F	I	N	E	S	X									8.0
	9.7	6.4	3.2	7.3	6.4	5.4	9.7									28.6
11.0 D	X	D	O	U	B	L	E	X								8.0
	3.9	6.9	7.5	7.3	7.3	6.4	4.9	3.9								40.3
4.0 D	X	I	N	X	W	O	R	K	X	Z	O	N	E	S	X	4.0
	3.1	1.6	2.7	3.2	4.3	3.8	3.6	2.8	3.2	3.4	3.8	3.6	3.2	2.7	3.1	41.8

Notes:

Typically, there are two sets of informational signs installed per project: one for each direction of traffic.

Install signs a minimum of 500' in advance of the road work ahead sign. The engineer may designate a more appropriate location if conditions dictate.

The informational signs are not to interfere with the traffic control signs for the project.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SIGN INFORMATION

TE710

FHWA APPROVAL		06/01/15	APP'D	Kristina Pyle	
DESIGNED	R.W.B.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

KDOT Graphics Certified 03-01-2022

Sh. No. 42

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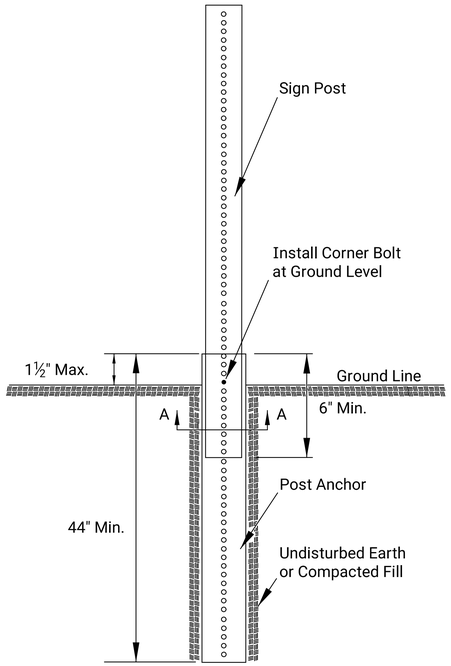
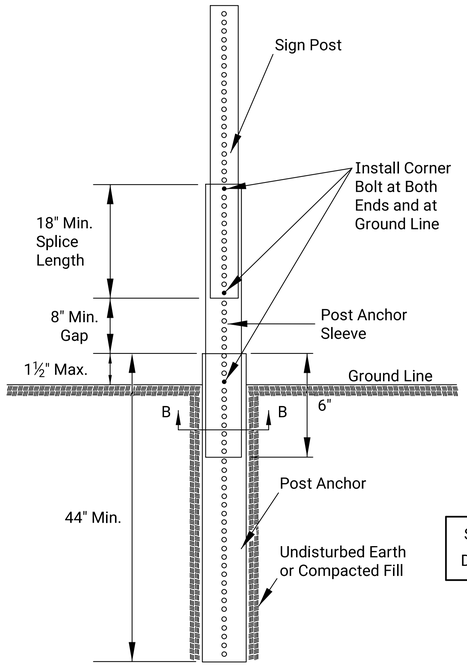
Drawn By : cnovosel
File : te710.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	43	52

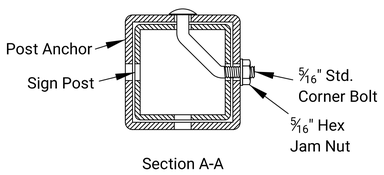
PERFORATED SQUARE STEEL TUBE (P.S.S.T.) POST SETUP



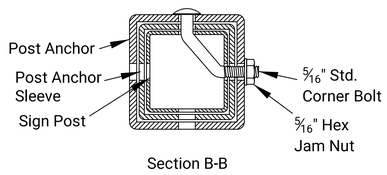
P.S.S.T. Detail



Telescoping P.S.S.T. Detail



Section A-A

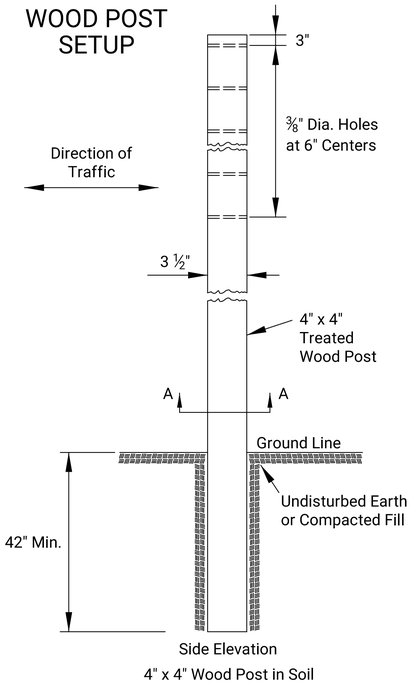


Section B-B

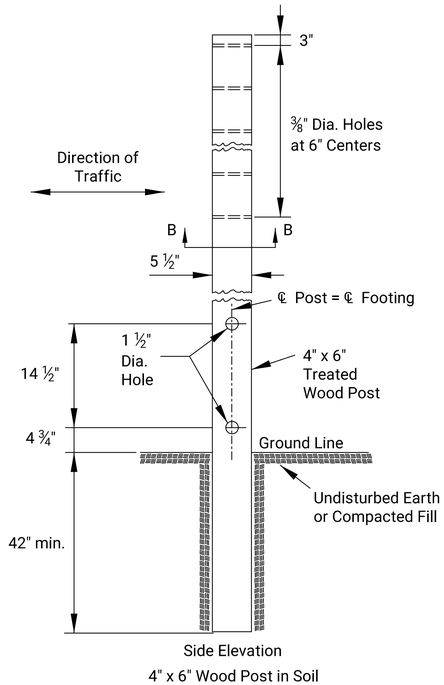
Details for 2", 2 ¼", or 2 ½" sign posts

Place bolts in the same corner along each sign post.

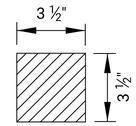
WOOD POST SETUP



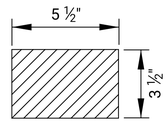
Side Elevation
4" x 4" Wood Post in Soil



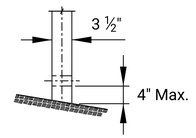
Side Elevation
4" x 6" Wood Post in Soil



Section A-A



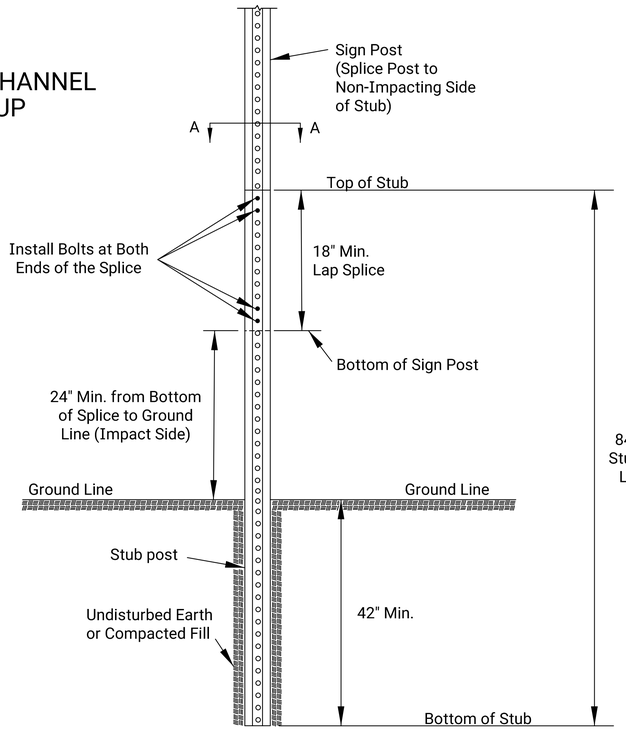
Section B-B



Front Elevation

See TE710 for Additional Details and Requirements

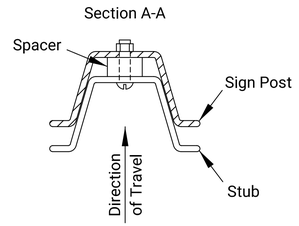
3 LB/F U-CHANNEL SETUP



Notes:

Place two bolts at both ends of the splice through the holes nearest the ends of the splice.

Use manufacturer recommended spacers over the bolts between the spliced pieces of U-Channel.



NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SIGN POSTS

TE712

FHWA APPROVAL			06/01/15	APP'D	Kristina Pyle		
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES		TRACED	
DESIGN CK.		DETAIL CK.		QUAN. CK.		TRACE CK.	

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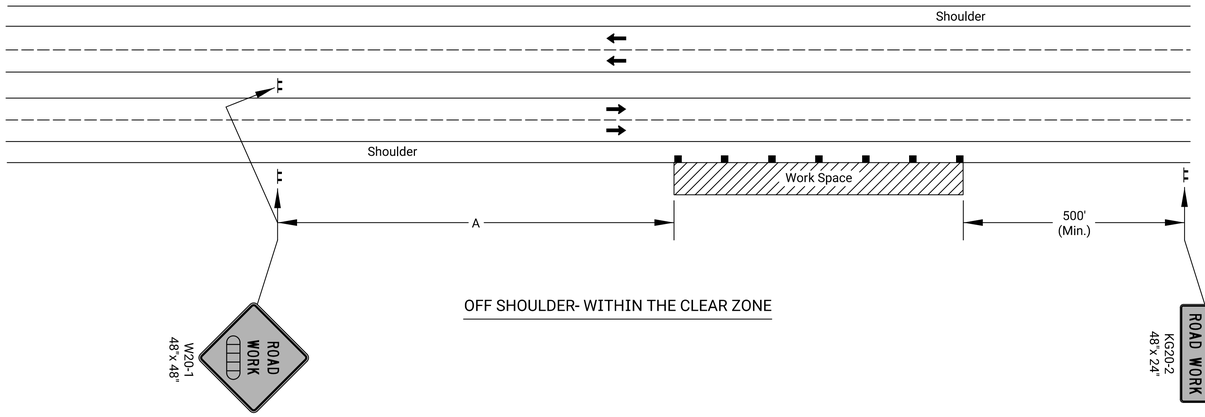
Plotted :01-MAR-2022 15:37

Drawn By : cnovosel
File : te712.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	44	52



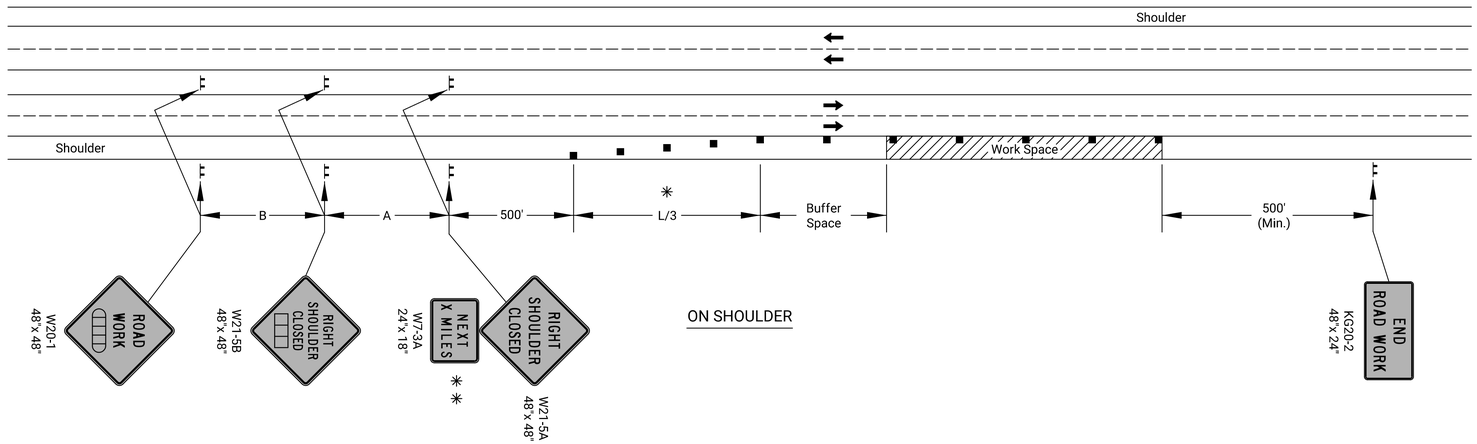
OFF SHOULDER- WITHIN THE CLEAR ZONE

Notes:

For work in the median, install signs and channelizing devices for each direction of traffic according to the applicable typical drawing.

No traffic control is required if the Work Space is located outside of the clear zone.

For operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with a high-intensity rotating, flashing, oscillating, or strobe light is used.



ON SHOULDER

✳ Omit taper if paved shoulder is less than 8' wide.

✳✳ Eliminate W7-3a if shoulder is closed for less than 2 miles.

X Length to the Nearest Whole Mile
■ Channelizing Device
Ahead, 1500 ft, or 1 Mile
Ahead, 1000 ft, 1500 ft or ½ Mile

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SHOULDER WORK
DIVIDED ROADWAY

TE722

FHWA APPROVAL		06/01/15	APP'D	Kristina Ericksen	
DESIGNED	L.E.R.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

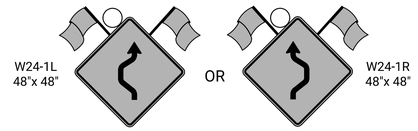
KDOT Graphics Certified 03-01-2022

Sh. No. 44

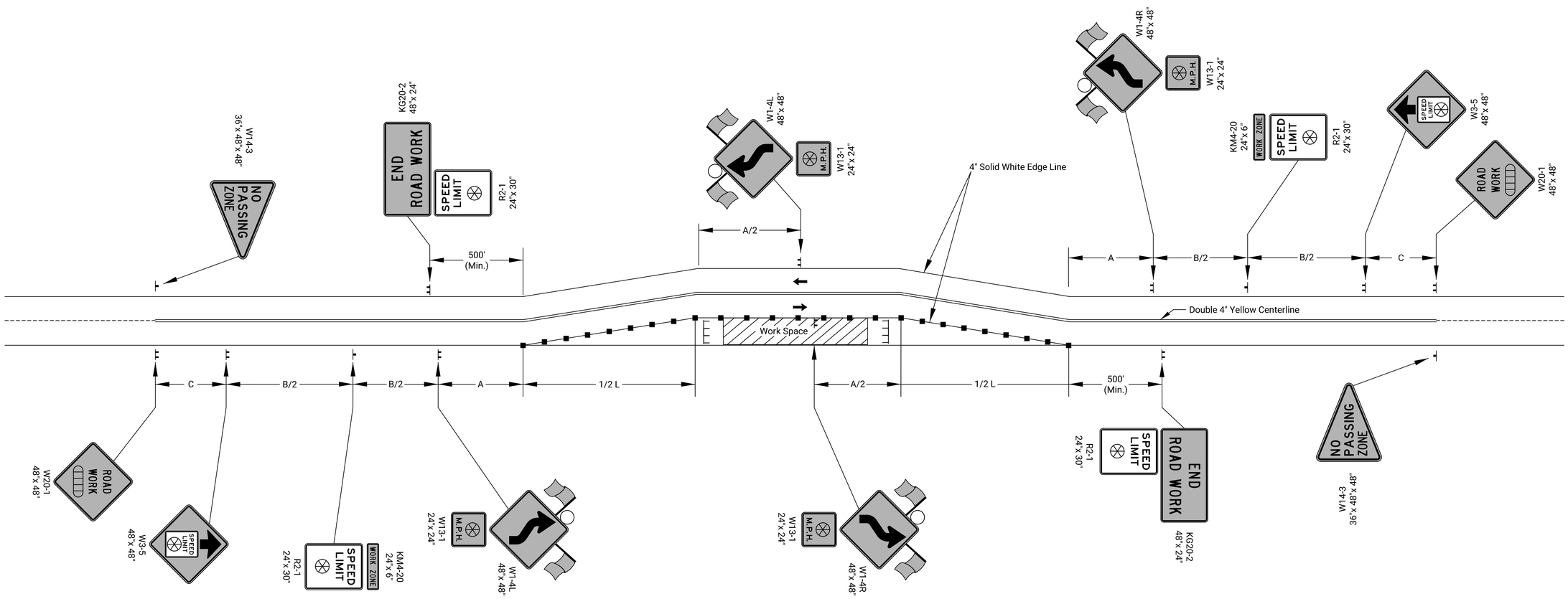
Plotted : 01-MAR-2022 15:37
Drawn By : cnovosel
File : te722.dgn

KDOT Graphics Certified

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	45	52



One W24-1 should be used per approach where the tangent distance between two reverse curves is less than 600 ft. If used, use in place of the first W1-4 and eliminate the second.



- Channelizing Device
- Type 3 Barricades
- Ahead, 1500 ft, or 1 Mile
- Speed to be Determined by the Engineer
- Type "A" Low Intensity Warning Light

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	03/13/18	W24-1 usage changed to Should	R.W.B.	E.G.K.

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL LANE SHIFT

TE724

FHWA APPROVAL		03/13/18	APP'D	Eric Kocher	
DESIGNED	R.W.B.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

KDOT Graphics Certified 03-01-2022

Sh. No. 45

KDOT Graphics Certified

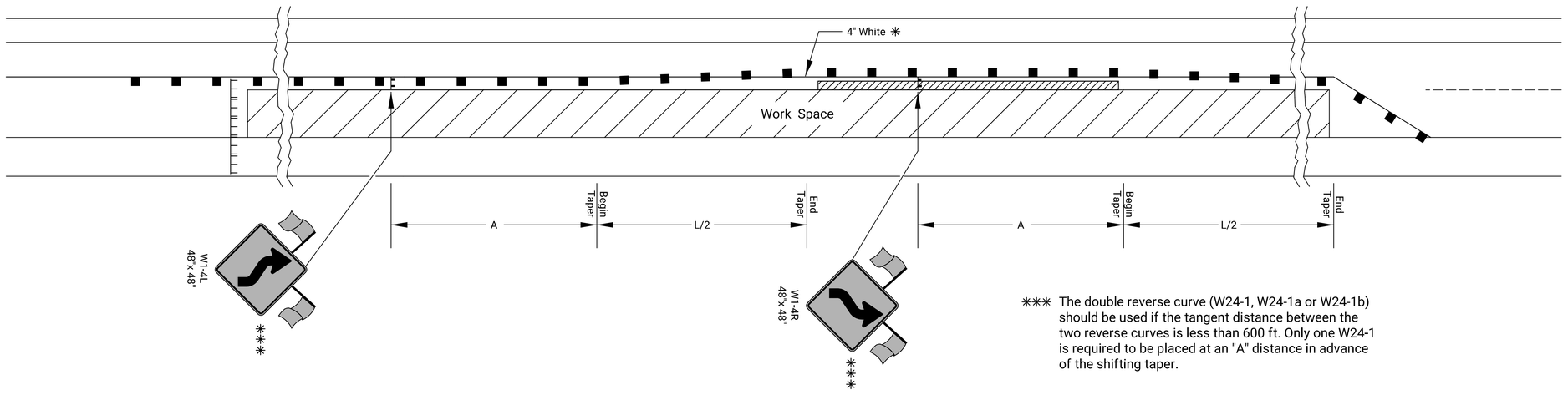
Plotted : 01-MAR-2022 15:37

Drawn By : cnovosel
File : te724.dgn

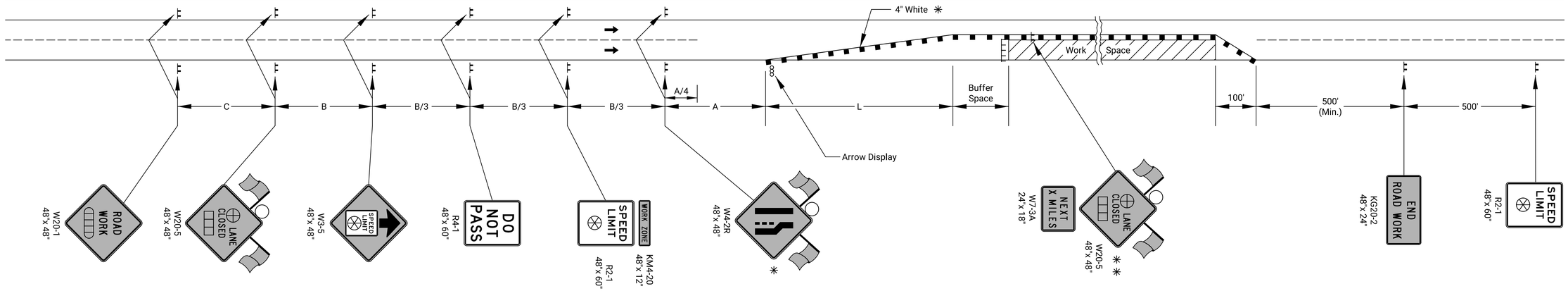
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	46	52

SHIFTING TAPER DETAIL

Add signs and devices as shown for work inside a closed lane that extends near to (or into) the open traffic lane.



✳✳✳ The double reverse curve (W24-1, W24-1a or W24-1b) should be used if the tangent distance between the two reverse curves is less than 600 ft. Only one W24-1 is required to be placed at an "A" distance in advance of the shifting taper.



- Type 3 Barricades
- X Length to the Nearest Whole Mile
- ■ Channelizing Device
- Ahead, 1500 ft, or 1 mile
- Ahead, 1000 ft, 1500 ft, or ½ mile
- ⊕ Right or Left
- ⊗ Speed to be determined by the Engineer
- ○ Type "A" Low Intensity Warning Light

✳ For left lane closures use W4-2L and yellow edge line along channelizing devices.

✳✳ The W20-5 (⊕Lane Closed) and W7-3A (Next X Miles) signs should be placed at 2 mile increments on a project of 4 miles or longer.

Left-side signs shall be omitted for a four-lane undivided highway.

One flagger should be stationed within each multi-lane roadway activity area where work is in a closed lane adjacent to traffic and not separated by a concrete safety barrier system.

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	03/13/18	W24-1 usage changed to Should	R.W.B.	E.G.K.

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
LANE CLOSURE ON MULTI LANE HWY

TE744

FHWA APPROVAL		03/13/18	APP'D	Eric Kocher	
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

KDOT Graphics Certified 03-01-2022

Sh. No. 46

KDOT Graphics Certified

Plotted : 01-MAR-2022 15:37

Drawn By : cnovosel
File : te744.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	47	52

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH)

Work Zone Sign (Special)		
Sign No.	16.25 Sq.Ft. & Less	16.26 Sq.Ft. & Over

SUMMARY OF TRAFFIC CONTROL DEVICES (EACH PER DAY)

✳ Quantity most used on the project at any one time

Work Zone Signs ✳			
Sign No.	Size - Sq.Ft.		
	0-9.25	9.26-16.25	16.26 & Over
W20-7		2	
KG20-2	9		
KM4-20	8		
W1-4		7	
W12-1	1		
W3-2		1	
W3-5		4	
W4-1		2	
W4-2		5	
W20-1		12	
W20-5		4	
R1-2		4	
R2-1			6
R3-7L	3		
R3-7R	2		
R4-1			4
R6-1R	1		
R11-2		1	
KI-104a		2	
KI-105a		2	

Barricades ✳		Channelizing Devices ✳		
Type 3 (4' to 12')	Pedestrian	Fixed	Portable	Pedestrian
26			380	

Lighted Devices ✳	
Work Zone Warning Light (Type "A" Low Intensity)	55
Work Zone Warning Light (Red Type "B" High Intensity)	
Arrow Display	2
Portable Changeable Message Sign	

Recapitulation of Quantities		
Item	Quantity	Unit
Work Zone Signs (0 to 9.25 Sq.Ft.)	3,060	Each Per Day
Work Zone Signs (9.26 to 16.25 Sq.Ft.)	5,870	Each Per Day
Work Zone Signs (16.26 Sq.Ft. & Over)	1,280	Each Per Day
Work Zone Barricades (Type 3 - 4' to 12')	3,320	Each Per Day
Work Zone Barricades (Pedestrian)		Each Per Day
Channelizer (Fixed)		Each Per Day
Channelizer (Portable)	48,450	Each Per Day
Channelizer (Pedestrian)		Each Per Day
Work Zone Warning Light (Type "A" Low Intensity)	7,020	Each Per Day
Work Zone Warning Light (Red Type "B" High Intensity)		Each Per Day
Arrow Display	260	Each Per Day
Portable Changeable Message Sign		Each Per Day
Pavement Marking (Temporary)		
4" Solid (Type I)	308.2	Sta./Line
4" Solid (Type II)		Sta./Line
4" Broken (8.0') (Type I)		Sta./Line
4" Broken (8.0') (Type II)		Sta./Line
4" Broken (3.0') (Type I)		Sta./Line
4" Broken (3.0') (Type II)		Sta./Line
4" Dotted Extension (Type I)	23.4	Sta./Line
4" Dotted Extension (Type II)		Sta./Line
Solid (Line Masking Tape)		Sta./Line
Broken (Line Masking Tape)		Sta./Line
Symbol (Type I)	4	Each
Symbol (Type II)		Each
Flexible Raised Pavement Marker (4" Broken (8.0'))		Sta./Line
Flexible Raised Pavement Marker (4" Broken (3.0'))		Sta./Line
Pavement Marking Removal	36,580	Lin. Ft.
Work Zone Sign (Special) (16.25 Sq. Ft. & Less)		Each
Work Zone Sign (Special) (16.26 Sq. Ft. & More)		Each
Rigid Raised Pavement Marker (Type I)		Each
Rigid Raised Pavement Marker (Type II)		Each
Traffic Signal Installation (Temporary)		Lump Sum
Traffic Control (Initial Set Up)	Lump Sum	Lump Sum
Traffic Control		Lump Sum
Flagger (Set Price)	1	Hour

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

KANSAS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL
SUMMARY OF DEVICES
RECAPITULATION OF QUANTITIES

TE795

FHWA APPROVAL		06/01/15	APP'D	Kristina Ericksen	
DESIGNED	B.A.H.	DETAILED	R.W.B.	QUANTITIES	TRACED
DESIGN CK.		DETAIL CK.		QUAN. CK.	TRACE CK.

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Sh. No. 47

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Plotted :01-MAR-2022 15:37

Drawn By : cnovosel
File : te795.dgn

Note to Designer: Report the quantity for temporary concrete safety barrier in linear feet.
The quantity is calculated by multiplying the number of barrier units by 12'-6".

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	48	52

SUMMARY OF QUANTITIES

			⊙ CONCRETE SAFETY BARRIER (TYPE F3)					
LOCATION (ROUTE)	STATION (OR STATION RANGE)	SIDE	FLARE RATE (WHERE APPLICABLE)	TEMPORARY	TEMPORARY-RELOCATE	TEMPORARY-INSTALL ONLY	UNIT	COMMENTS
K-61	SHEET 2	NB	10:1	375			FT	PHASE 1
K-61	SHEET 2	SB	10:1	375			FT	PHASE 1
K-61	SHEETS 3-4	NB	10:1	512.5			FT	PHASE 1
K-61	SHEETS 3-4	SB	10:1	612.5			FT	PHASE 1
K-61	SHEET 2	NB	10:1		387.5		FT	PHASE 2
K-61	SHEET 2	SB	10:1		387.5		FT	PHASE 2
K-61	SHEETS 3-4	NB	10:1		512.5		FT	PHASE 2
K-61	SHEETS 3-4	SB	10:1		475		FT	PHASE 2

⊙ The quantity reported does not include the 3⅝" gap between 12'-6" sections of barrier. The 3⅝" gap will not be included in the pay length for Concrete Safety Barrier (Type F3) (Temporary).

RECAPITULATION OF QUANTITIES (BARRIER & IBS)

ITEM	UNITS	BR. NO. (076) QUANTITY	BR. NO. (079) QUANTITY	TOTAL
CONCRETE SAFETY BARRIER (TYPE F3)(TEMPORARY)	LIN. FT.	750	1125	1875
CONCRETE SAFETY BARRIER (TYPE F3)(TEMPORARY - RELOCATE)	LIN. FT.	775	988	1763
INERTIAL BARRIER SYSTEM (TL-3)	EACH	2	2	4
REPLACEMENT MODULES (IBS)	EACH	-	-	15

Design Parameters	
Design Speed (mph)	Flare Rate (a:b)
70	15:1
60	14:1
55	12:1
50	11:1
45	10:1
40	8:1
30	7:1

Note: The flare rates listed here apply only to temporary concrete safety barrier installations. See temporary concrete safety barrier layouts included in the plans for variations. Typical alternate flare rates may be used as approved by the Engineer.

Plotted :01-MAR-2022 15:37
Drawn By : cnovosel
File : rd052.dgn

NO.	DATE	REVISIONS	BY	APP'D
1	2-11-15	Initial Release	K.E.K.	S.W.K.

KANSAS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
TEMPORARY CONCRETE SAFETY BARRIER AND END TREATMENTS

RD052

FHWA APPROVAL	9-16-15	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. Hecht

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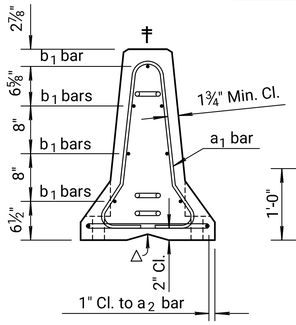
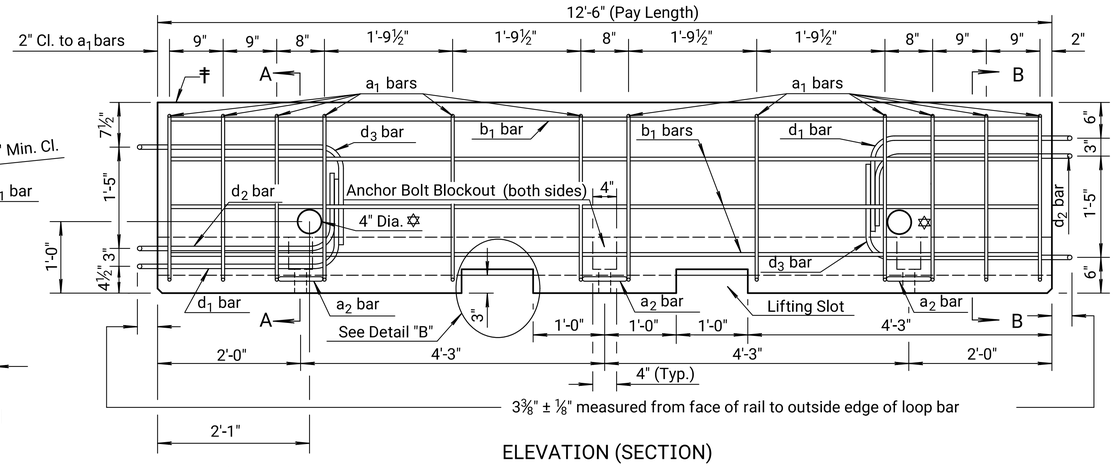
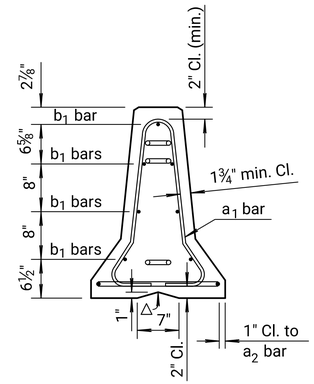
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	49	52



SECTION A-A
TYPICAL SECTION
(Stirrup Placement)

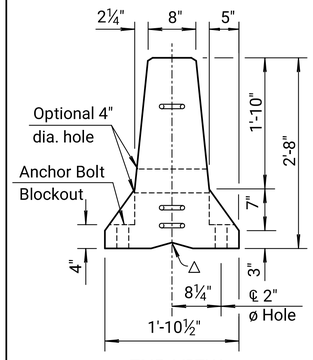


ELEVATION (SECTION)

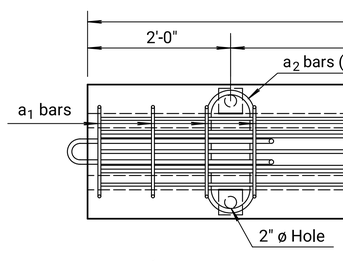


SECTION B-B
TYPICAL SECTION
(Stirrup Placement)

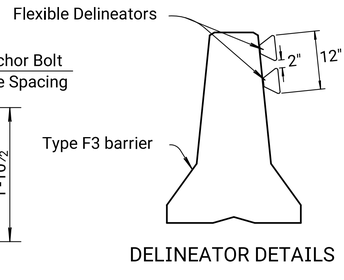
† Marked End
✡ 4" diameter - 11 gauge steel round mechanical tubing sleeve. These holes are optional.
△ V Notch is optional



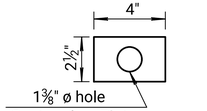
END VIEW



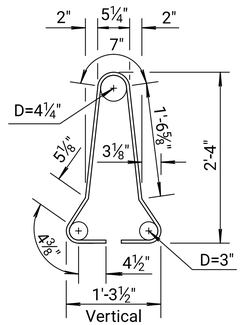
PLAN (SECTION)

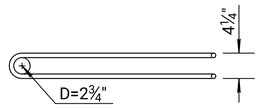


DELINEATOR DETAILS

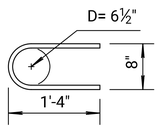


(½" Top Plate Detail)

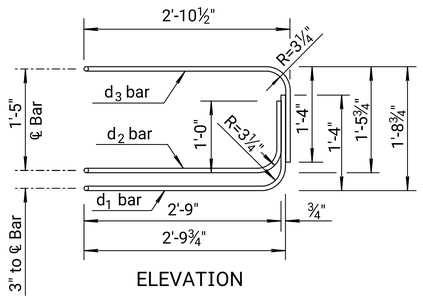




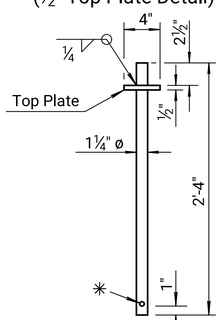
PLAN
LOOP BAR ASSEMBLY
(Marked end shown, invert for other end)
(Material as stated in General Notes)



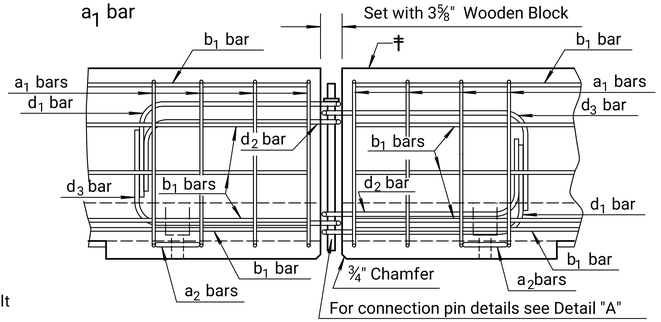
a2 bar



ELEVATION



DETAIL A
CONNECTION PIN
(A36 Steel) 10.9 lbs. each
✳ ⅝" ø hole for retainer bolt. The retainer bolt & nut are installed at Contractor's option.
Note: Retainer bolt & nut required with Tie Down Strap.

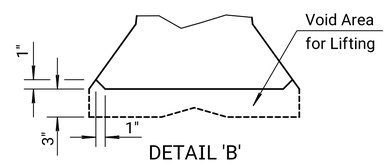


DETAILS OF BARRIER CONNECTION

Per 12'-6" Barrier Section

REINFORCING A615 Gr. 60					
Bar	Bar Size	Shape	No. of Bars	Length Ft.	Weight Lbs.
a_1	#4		12	6'-0"	48.1
a_2	#6		6	2'-11"	26.3
b_1	#5		7	12'-2"	88.8
LOOP ASSEMBLY					
d_1	#6		2	8'-5"	25.3
d_2	#6		2	7'-7"	22.8
d_3	#6		2	8'-6"	25.5

Concrete Quantity = 1.3 C.Y.
(Dimensions are out to out of bars unless otherwise noted.)



DETAIL 'B'
LIFTING SLOT DETAIL
(1" Chamfer to prevent spalling)

NOTE: At no time shall the barriers be lifted, moved, etc. by use of the loop bars: d_1, d_2 or d_3.

GENERAL NOTES:

MATERIAL: Use ASTM A615, Grade 60 reinforcing bars, except for the loop bars (d_1, d_2 and d_3). The loop bars (d_1, d_2 and d_3) shall be ¾" smooth steel bars with a minimum yield of 60 ksi, a tensile strength of not less than 1.25 times the yield strength but a minimum of 80 ksi, a minimum 14% elongation in 8 inches, and passing a 180 degree bend test using a 3.5 D pin bend diameter. The loops shall be installed within ⅛" of the plan dimensions.

Use air-entrained concrete with f'c = 5,000 p.s.i.

SECTION: The section furnished must generally comply with dimensions shown. Requests for minor variations in section geometry and attachments may be submitted to the Engineer for approval.

LIFTING SLOTS: Lifting slots shall be constructed where specified on the plans to facilitate the drainage of water after installation on the roadway.

TEMPORARY CONCRETE SAFETY BARRIER: Furnishing and placing of all materials when required and all labor and equipment required to position the temporary barrier shall be included in the Contract unit price bid for "Concrete Safety Barrier (Type F3)(Temporary)". Any relocation of the barrier required for the project shall be paid in accordance with the Special Provisions under the bid item "Concrete Safety Barrier (Type F3) (Temporary-Relocate)". Unless otherwise noted on the Plans, the Temporary Concrete Safety Barrier shall become the property of the Contractor and shall be removed from the site upon acceptance of the completed project.

Approximate weight of one unit equals 2.7 tons.

PLACEMENT: Barrier shall be placed on a paved surface. All loose dirt and sand shall be removed from the roadway surface just prior to placement of the barrier.

After the barrier is placed and the connection pin is inserted, tension or pull the barrier such that the installation is taut and the connection pin cannot freely move vertically. If the connection pin or loop bar assembly are damaged during the tensioning process, it is the responsibility of the Contractor to repair the damaged area or replace the temporary barrier section.

MARKING: The left end (†) of each barrier shall be permanently marked by stamping or forming into the barrier the following information:
- Type F3
- Manufacturer code (as specified by KDOT Bureau of Const. & Maint.)
- Date manufactured (month and year)

DELINEATION: Delineators shall be spaced on 50' centers, except through curves where they shall be spaced on 25' centers. See Standard Drawing RD610 for additional details.

The delineation shall be mounted on the side of the Temporary Concrete Safety Barrier with two delineators at each location. Each delineator shall have a minimum height-to-width ratio of 1.75, and a minimum reflective surface area of 7 sq. in.. The delineators shall be affixed to the Temporary Concrete Safety Barrier as recommended by the manufacturer.

Delineators shall be attached to bridge rail or other structures in construction zones when roadway is narrowed and traffic is adjacent to the structure. The method and location of placement shall be similar to permanent barrier delineation.

When traffic flow is in one direction, the delineators shall be yellow when used on the left, white when used on the right. When traffic flow is in both directions delineators shall be placed back-to-back, and shall correspond to the color of the edge line.

The work and materials required for the installation of delineators as mentioned shall be subsidiary to the bid item "Concrete Safety Barrier (Type F3) (Temporary).

If necessary, include Standard Drawing RD622A for Taper Section, Standard drawing RD622B for anchor and tie down details, Standard Drawing RD622C for Bridges with thermal expansion of 1½" or greater and Standard Drawing RD622D for Barrier Layouts.

The Contractor shall be responsible for maintaining a clear area, shown as dimension "A" on Standard Drawing RD622B. The clear area is located behind the Temporary Concrete Safety Barrier and shall be kept free of any equipment, material stockpiles or other obstacles. For non-anchored roadway applications, dimension "A" shall be a minimum of 2'-0".

NO.	DATE	REVISIONS	BY	APP'D
7	9-11-17	Revised Markers	A.L.R.	S.W.K.
6	7-17-17	Revised General Note	A.L.R.	S.W.K.
5	8-27-15	Added Note, Pay Length	K.E.K.	S.W.K.
4	5-17-13	Revised General Note, Clear Area	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3

RD622

FHWA APPROVAL	3-5-18	APP'D. Scott W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

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Sh. No. 49

KDOT Graphics Certified

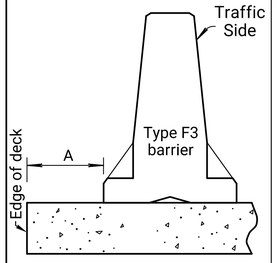
Plotted :01-MAR-2022 15:37
Drawn By: cnovosel
File : rd622.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	50	52

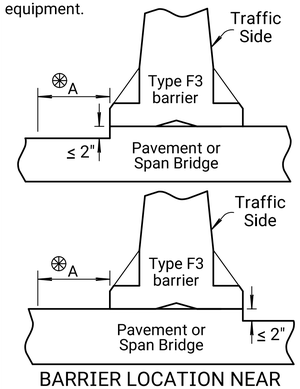
GENERAL NOTES:
INSTALLATION: Holes into the pavement to anchor the concrete safety barrier may be drilled after positioning barrier. When anchoring with 3 bolts on traffic side, install barrier with through anchor bolt where possible, use grouted anchor bolts where through bolt can't be used. Do not drill into or otherwise damage support beams, girders, or expansion joints. All work & materials required for the installation of the anchors are subsidiary to the bid item "Concrete Safety Barrier".
UTILITIES & STRUCTURES (Stakes): Verify buried utilities & structures within stake depth. If conflicts between stake & buried elements exist, up to 2 stakes maximum in a single barrier may be omitted if adjacent barriers have 3 stakes each.

ANCHORAGE: Use galvanized grouted anchor bolts, through anchor bolts, nuts & washers that meet standard specifications. Install 3 anchor bolts or asphalt pins per barrier on the traffic side except on transition barrier as shown.
BARRIER REMOVAL: Completely remove all anchor systems. Remove grouted or drop-in anchor system by drilling the anchor with a core barrel 2x the diameter of the insert. Core to a depth equal to the installed depth & remove the core, prepare the hole by removing dust & debris. Fill hole with material that meets KDOT Pre-qualified "Non-shrink grouts for grouting anchor bolts & reinforcing into previously poured concrete". Follow the manufacturer's procedures for mixing, hole preparation & curing. To fill through bolt anchor or screw-in anchor system, remove & completely fill the hole using instructions for drop-in anchors except no coring is required.
For removed or relocated barrier on flexible pavement, fill stake holes completely with hot or cold asphalt patch material. Work & materials required to remove & patch anchor holes are subsidiary to the bid item "Concrete Safety Barrier".
TEMPORARY BARRIERS: Temporary Barriers shown in the details of this drawing are not allowed for permanent installations.
See KDOT Standard Drawing "Temporary Concrete Safety Barrier Type F3 Transition Layouts" for transition details between anchored & free-standing barriers. See KDOT Standard Drawing "Temporary Concrete Safety Barrier Type F3" for details & quantities not shown on this sheet.
SIGNING: For sign spacing, traffic control device details & reference notes, see Index of Sheets.

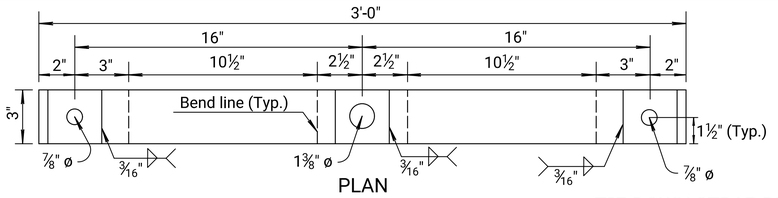
NO ANCHORAGE REQUIRED unless shown on plans		
"A" DISTANCE	A ≥ 4'	A ≥ 2'
LOCATION	Span Bridge	⊛ Box Culverts Roadways - Flexible or Rigid Pvmnt.



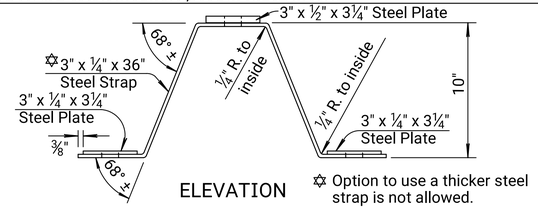
⊛Applies on span bridges when the action creates a height differential of ≤ 2". Measured from the toe of the barrier, the "A" distance should be free of obstacles and equipment.



BARRIER LOCATION NEAR HEIGHT DIFFERENTIAL



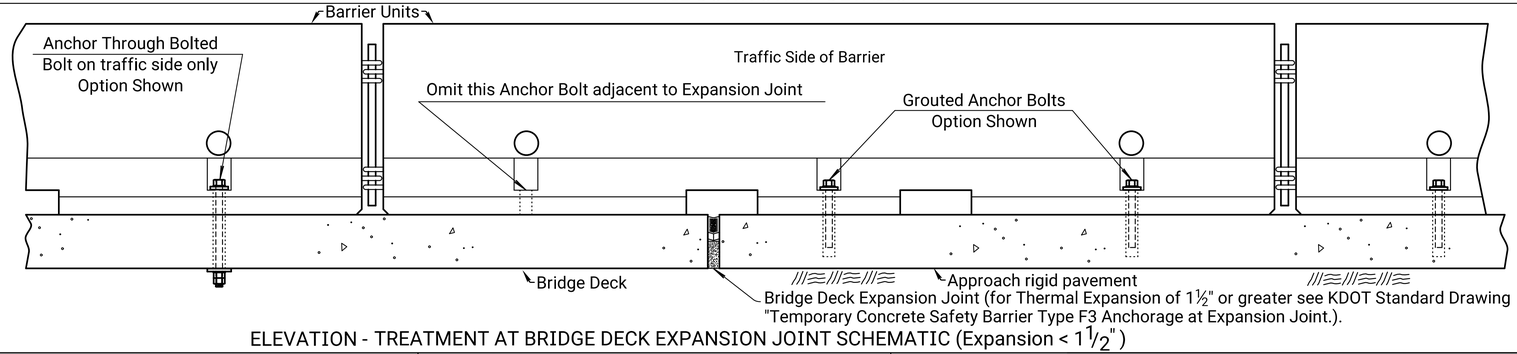
PLAN



ELEVATION

✡ Option to use a thicker steel strap is not allowed.

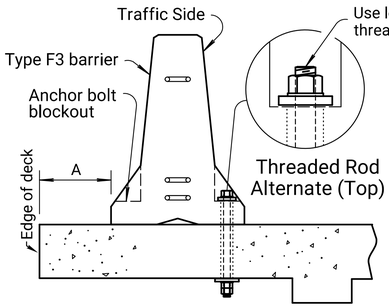
TIE-DOWN STRAP DETAILS

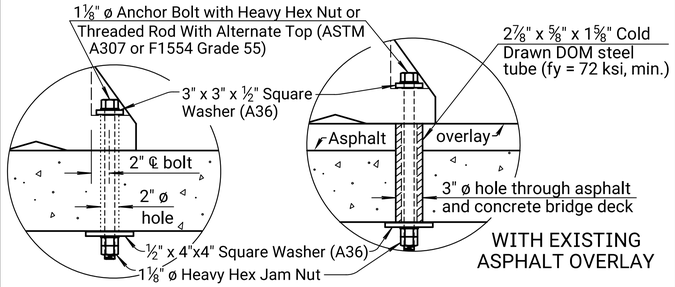


ELEVATION - TREATMENT AT BRIDGE DECK EXPANSION JOINT SCHEMATIC (Expansion < 1½")

ANCHORAGE	ANCHOR BARRIER with 3 BOLTS ON TRAFFIC SIDE	ANCHOR BARRIER with 3 BOLTS ON TRAFFIC SIDE		ANCHOR BARRIER with TIE-DOWN STRAP		ANCHOR BARRIER with STAKES
"A" DISTANCE	0' ≤ A < 2'	0' ≤ A < 2'		△ 2' ≤ A < 4'	6" ≤ A < 2'	6" ≤ A < 2'
LOCATION	Span Bridge	Span Bridge	Box Culverts Roadways - RIGID Pavement	Span Bridge	Box Culverts Roadways - RIGID Pavement	Box Culverts (ceiling below stake depth) Roadways - FLEXIBLE Pavement

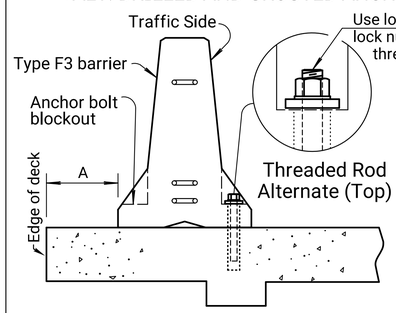
THROUGH BOLT (Preferred)



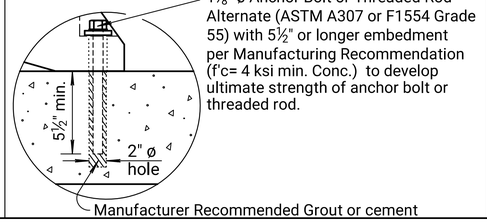


WITH EXISTING ASPHALT OVERLAY

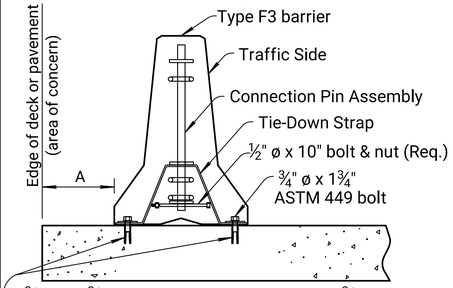
✧ALT. DRILLED AND GROUTED ANCHOR



✧Note: Alternate Drilled and Grouted Anchor installation avoids damage to the support beams, girders or expansion joint. The State Bridge Office shall approve the use of the Alternate Drilled and Grouted Anchor installation for bridge applications.

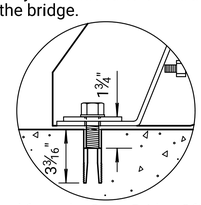


TIE-DOWN STRAP



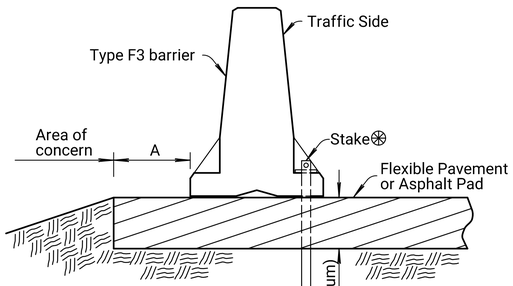
¾" ø x 1 ¾" ASTM 449 Bolt with Red Head ¾" drop in anchor, Red Head large diameter Tapcon (LDT) ¾" ø x 4 ½" long, or Simpson Titen HD ¾" ø x 5" long

△"A" distance may be reduced to 6" if traffic does not travel under the bridge.

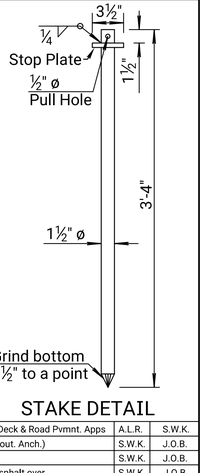


With prior approval from the State Bridge Office, anchoring the barrier with 3 bolts (Through Bolt OR Drilled & Grouted Anchor oprtions) on the traffic side may be used in lieu of tie-down straps.

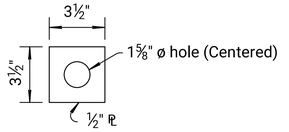
STAKED DOWN



⊛ Predrill 1½" ø holes in flexible pavement prior to installing stakes.



STAKE DETAIL



STOP PLATE DETAIL

NO.	DATE	REVISIONS	BY	APP'D
7	4-21-21	Revised Layouts for Br. Deck & Road Pvmnt. Apps	A.L.R.	S.W.K.
6	12-31-13	Rev. Note (Alt. Drill. & Grout. Anch.)	S.W.K.	J.O.B.
5	6-27-11	Revised General Note	S.W.K.	J.O.B.
4	9-14-10	Add. through bolt with asphalt over.	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 ANCHORAGE

RD622B

FHWA APPROVAL	04-21-21	APP'D. Scott W. King	
DESIGNED	DETAILED	QUANTITIES	TRACED
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK.

KDOT Graphics Certified

Note to Designer: For use on Haunched slab bridges, the Road Designer shall coordinate with the Bridge Designer for "corridor In the reinforcing steel layout to accommodate barrier anchoring."
Road Designer shall coordinate barrier layout with Bridge Designer to accomodate for expansion during construction.

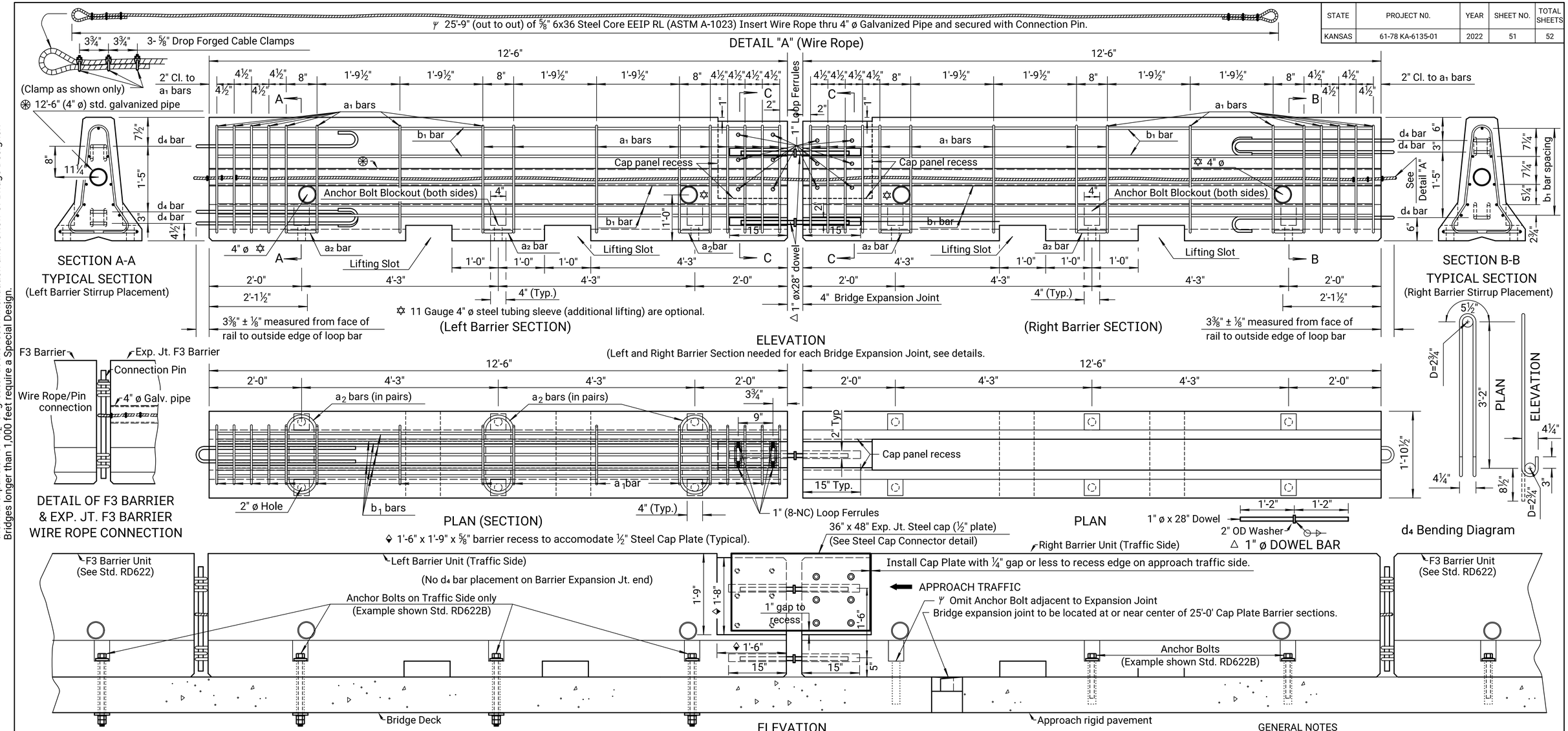
Plotted :01-MAR-2022 15:37
Drawn By: cnovosel
File : rd622b.dgn

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	51	52

Note to Designer: This F3 Barrier Anchorage at Expansion Joint is only for use on bridges with thermal expansion of 1½" or greater at the recommendation and review of Bridge Designer. Bridges longer than 1,000 feet require a Special Design.

Plotted :01-MAR-2022 15:37

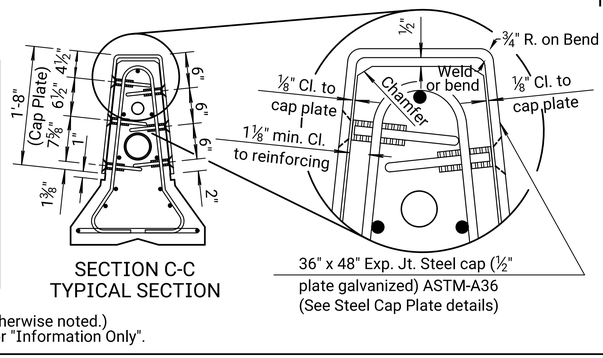
Drawn By : cnovosel
File : rd622c.dgn



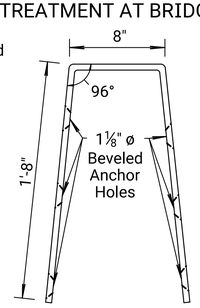
Per 12'-6" Barrier Section

REINFORCING A615 Gr. 60					
Bar	Bar Size	Shape	No.of Bars	Length Ft.	Weight Lbs.
a1	#4		16	6'-0"	64.1
a2	#6		6	2'-11"	26.3
b1	#5		9	12'-2"	114.2
LOOP ASSEMBLY					
d4	#6		3	8'-2"	36.8
½" Structural Steel Cap Plate					201.3

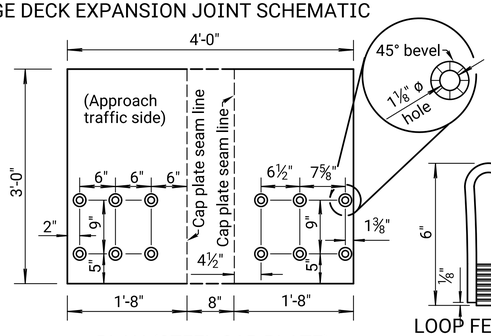
Concrete Quantity = 1.3 C.Y.
(Dimensions are out to out of bars unless otherwise noted.)
Reinf., Struct. and Concrete quantities are for "Information Only".



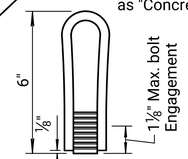
SECTION C-C
TYPICAL SECTION



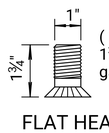
END VIEW
STEEL CAP PLATE



PLAN (STEEL CAP PLATE)



LOOP FERRULE
(1" Galvanized)



(1" ø-8 NC x 1¾" ASTM 307 galvanized bolt)

FLAT HEAD
SOCKET CAP
SCREW-Coarse

GENERAL NOTES

Installation of F3 Barrier with Steel Cap Plate is for thermal expansion joint with ≥ 1½". This two barrier system (25'-0") is reversible to match with regular F3 Barrier layout. The Cap Plate sections are installed with no greater than 4" gap and pinned as shown in Expansion Jt. schematic. Install Cap Plate flush to recess on Traffic Approach side and bolt in place front and back of barrier with attachment types shown.

See Standard Drawing RD622 for reinforcing bending diagrams and additional details not shown on this sheet.

The State Bridge Office will review shop details before fabrication begins.

All materials, labor and equiptment needed for (Type F3) (25' Expansion Joint Unit) shall be bid as "Concrete Safety Barrier (Type F3) (Temporary)".

NO.	DATE	REVISIONS	BY	APP'D
3	7-26-07	Chg. flat head screw & ferrul to 1" ø	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE SAFETY BARRIER TYPE F3 ANCHORAGE at EXPANSION JT.

RD622C

FHWA APPROVAL 10-05-07		APP'D. James O. Brewer	
DESIGNED J.P.J.	DETAILED	QUANTITIES	TRACED B.N.B.
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. S.W.K.

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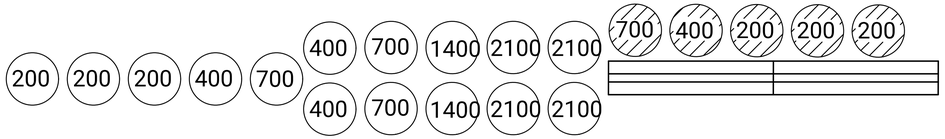
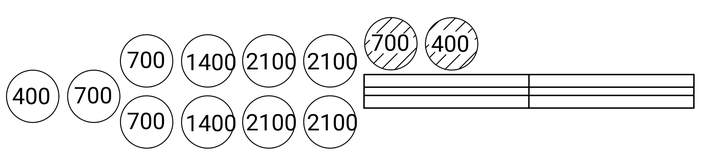
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	61-78 KA-6135-01	2022	52	52

HIGH SPEED TL-3
(V > 45 MPH)



LOW SPEED TL-2
(V ≤ 45 MPH)



INERTIAL BARRIER SYSTEM

Station	Side	Design Speed	Comments
SHEET 2	NB	45 mph	Phase 1
SHEET 2	SB	45 mph	Phase 1
SHEET 3	NB	45 mph	Phase 1
SHEET 4	SB	45 mph	Phase 1
SHEET 2	NB	45 mph	Phase 2
SHEET 2	SB	45 mph	Phase 2
SHEET 3	NB	45 mph	Phase 2
SHEET 4	SB	45 mph	Phase 2

GENERAL NOTE

This drawing details general configurations for Inertial Barrier Systems. Some project specific conditions may require variations which are designed to meet prevailing criteria.

Use Inertial Barrier System consisting of the units as shown for the specified design speed, all hardware and attachments.

Install Inertial Barrier System on a flat, stable base with cross-slope no steeper than 10: 1. See Manufacturer's recommendations for module materials and method of installation.

See standard specifications for mixture to fill modules requirements.

Provide a 6" spacing between modules and one foot between the end of concrete barrier or other rigid object.

When installed as part of project traffic control, the bid item "Inertial Barrier" includes the original installation and required relocations.

Keep available replacement modules to replace any size module used on site, Engineer's direction.

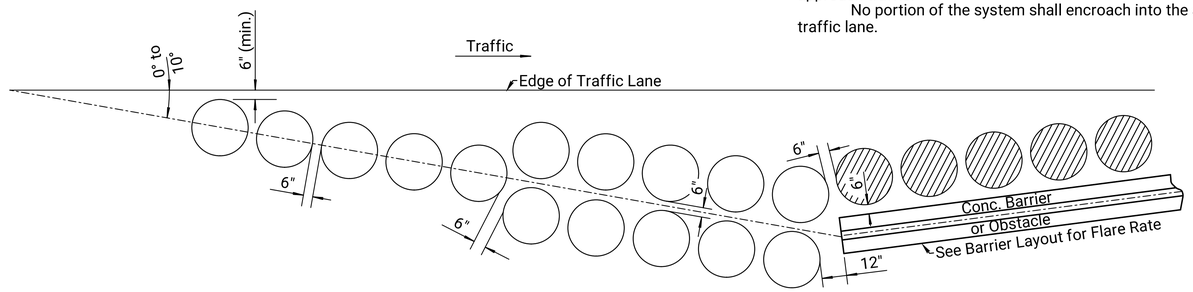
Inertial Barrier System modules damaged by the Contractor during relocation of Inertial Barrier System are replaced at the Contractor's expense.

Module weights shown are in pounds.

Install 270 square inches of Type II High Performance (vertical, rectangular or diamond shape) reflective sheeting on first module of Inertial Barrier System facing traffic.

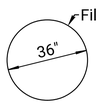
Where sufficient space is available the Inertial Barrier System may be aligned at an angle, not to exceed 10°, in the direction of approach traffic.

No portion of the system shall encroach into the approach traffic lane.

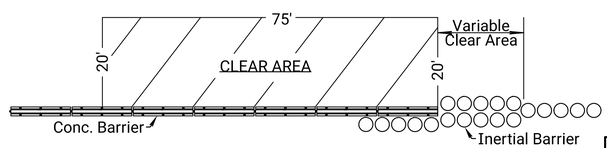


TYPICAL PLAN of INERTIAL BARRIER

When two-way traffic is adjacent to only one side of Concrete Barrier or Obstacle, these additional modules will be placed on the Traffic Side of Concrete Barrier or Obstacle. Traffic adjacent to both sides of the Concrete Barrier or Obstacle requires an additional set of modules each side if approach traffic is exposed to the back portion of the Inertial Barrier. These additional modules are not required along the sides of Concrete Barrier or Obstacle when it's location is outside the Clear Zone or one-way directional traffic.



PLAN
Replacement Module



PLAN - CLEAR AREA

NO.	DATE	REVISIONS	BY	APP'D
8	1-27-15	Rev. Layouts (TL-2/TL-3)	K.E.K.	J.O.B.
7	5-17-13	Added Detail, Clear Area	S.W.K.	J.O.B.
6	2-3-12	Revised General Note	S.W.K.	J.O.B.
5	6-27-11	Revised notes & Typical Plan detail	S.W.K.	J.O.B.

KANSAS DEPARTMENT OF TRANSPORTATION

INERTIAL BARRIER
(TL2 or TL3)

RD620

FHWA APPROVAL	9-16-15	APP'D. James O. Brewer	
DESIGNED	DETAILED	QUANTITIES	TRACED Bowser
DESIGN CK.	DETAIL CK.	QUAN.CK.	TRACE CK. King

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File : rd620.dgn